The relationship between working capital management and the financial performance of listed food and beverage companies in South Africa

by

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submitted in accordance with the requirements for

the degree of

MASTER OF COMMERCE

in the subject

Business Management

AT THE UNIVERSITY OF SOUTH AFRICA

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(June 2018)

DECLARATION

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I, Ndonwabile Zimasa Mabandla, do hereby certify that this dissertation submitted to the University of South Africa, Pretoria, is my own work and that all sources I have used have been cited and acknowledged by means of complete references.

Signed: N. Z. Mabandla Date: 6 June 2018

Abstract

This study aimed to examine the relationship between working capital management and the financial performance of listed food and beverage companies in South Africa. Despite the existing literature on this relationship, no notable studies have investigated it in this particular industrial sector. Various data from a sample of 12 food and beverage companies listed on the JSE during the period 2007 to 2016 were collected from *iress* McGregor databases. Econometric regression analysis was then conducted on the data to determine the magnitude of relationships between working capital components and the financial performance of these companies. The researcher found that adopting an aggressive working capital management strategy assists in creating shareholder wealth through improved financial performance of the firm. To sum up, the shorter the cash conversion cycle, the more profitable the firm will be.

Keywords: *Working capital management, cash conversion cycle, profitability, liquidity, agency theory*

Isishwankathelo

Injongo yesi sifundo kukuphonononga unxulumano phakathi kolawulo lwemali etyalelwa ukusebenza (inkunzi) nentsebenzo yemali (inzala) eyenziwa ziinkampani ezibhalisiweyo zokutya neziselo eMzantsi Afrika. Nangona kukhona okubhaliweyo malunga nolu nxulumano, akukho sifundo sigqamileyo ngeli candelo lorhwebo. Kukho iinkcukacha ezaqokelelwa kwiinkampani ezikhethiweyo ezili-12 nezibhaliswe kwiJSE. Ezi nkcukacha zazikwingqokelela egciniweyo eyaziwa ngokuba yi ‘iress McGregor databases’. Kuye kwenziwa uhlalutyo ngokuthelekisa inzala eqhele ukwenziwa naleyo kuqikelelwa ukuba iza kwenziwa kwezi nkcukacha zikaMcGregor. Oku bekusenzelwa ukubona ubungakanani bonxulumano phakathi kwenkunzi nenzala eyenziwa zezi nkampani. Umphandi ufumanise ukuba ukwakha icebo lolawulo olungqongqo lwenkunzi kuyanceda ekudaleni ubutyebi babanini zabelo ngokuphucula inzala eyenziwa liqumrhu lorhwebo. Elokuqukumbela lithi, ngokufutshanisa ivili lokuguqula imali, iya kuba ngaphezulu inzala yequmrhu lorhwebo.

Boithuto bona bo reretswe ho lekola kamano e pakeng tsa moralo wa tsamaiso ya ditjhelete (*working capital management*) le tshebetso ya tsa ditjhelete dikhamphaning tse thathamisitsweng tsa dijo le dino tsa Afrika Borwa. Leha ho na le dingolwa tse buwang ka kamano ena, ha hona diphuputso tsa bohlokwa tse kileng tsa etswa karolong ena e kgethehileng ya indasteri. Dintlha tse fapaneng ho tswa sampoleng ya dikhamphani tse 12 tsa dijo le dino tse thathamisitsweng ho JSE nakong ya 2007 ho isa 2016 di bokelletswe ho tswa ho didathabeise tsa *iress* McGregor. Ho ile ha etswa manollo ya *econometric regression* ho datha eo ho fumana boholo ba dikamano pakeng tsa dikarolo tsa ditjhelete tsa tshebetso le tshebetso ya ditjhelete tsa dikhamphani tsena. Mofuputsi o ile a fumana hore ho sebedisa moralo o matla wa tsamaiso ya ditjhelete ho thusa ho theha leruo la beng ba dishere ka tshebetso e ntlafetseng ya ditjhelete tsa khamphani. Ho akaretsa, ha saekele ya phetolo ya kontane e le kgutshwane, khamphani e ba le tswala e ngata ho feta.

ACKNOWLEDGEMENTS

I would like to convey my appreciation to the following persons for their support and contribution.

Firstly, I would like to thank God for providing me with strength during the process of this study. I would also like to thank my supervisor Dr Patricia Makoni for her assistance and guidance. My sincere gratitude also goes to my family, friends and colleagues, for their continued encouragement and for creating an environment conducive to focusing on my study. I would also like to thank the Graduate Development Fellowship Programme of the College of Economic and Management Sciences at the University of South Africa (UNISA) for the financial support during my studies. Without it, this study would have been incomplete. Lastly, I would like to thank Dr Godfrey Marozva for his assistance in the statistical analysis and Dr Ruth Scheepers, for providing editorial assistance.

List of acronyms

ACP	Average Collection Period
ATR	Acid Test Ratio
APP	Average Payment Period
CCC	Cash Conversion Cycle
CAR	Current Assets Ratio
CLR	Current liabilities to total assets ratio
CR	Current ratio
CSE	Colombo Stock Exchange
CTL	Cash balance to current liabilities
DAR	Debt to assets ratio
DAP	Days accounts payable
DP	Days of Payable
DSO	Days of Sales Outstanding
DR	Debt Ratio
EVA	Economic Value Added
FATA	Fixed Financial Ratio
FEM	Fixed Effects Model
GDP	Gross Domestic Product
GOP	Gross Operating Profit
GMM	General Method of Moment Model
GPM	Gross Profit Margin
ICP	Inventory Conversion Period
IHP	Inventory Holding Period
INV	Inventory turnover in days
ISE	Indian Stock Exchange
JSE	Johannesburg Stock Exchange
KSE	Karachi Stock Exchange
LOS	Natural Logarithm of Sales
LR	Liquidity Ratio
NP	Net Profit
NPM	net profit margin

NSCA	Net Working Capital Ratio
NSE	Nairobi Stock Exchange
NTC	Net Trade Cycle
OCL	Operating cash flow
OLS	Ordinary Least Square
OPM	Operating Profit Margin
PLC	Profit before taxation to current liabilities
QR	Quick Ratio
REM	Random Effects Model
ROA	Return On Assets
ROE	Return On Equity
SA	South Africa
SARB	South African Reserve Bank
SMEs	Small and Medium Enterprises
TA	Total Assets

List of Figures

List of Tables

Table of Contents

Chapter One: Introduction

1.1 Introduction

A significant number of studies have been conducted on working capital management and financial performance internationally, and in Africa, specifically in West and East African countries. However, few studies could be found on this relationship in Southern Africa, and in particular in South Africa. Adebowale, Salleh and Rohani (2015:64) believe that an important issue that needs to be considered before making financial decisions is working capital management, since it has a direct impact on the performance of any company.

The purpose of this study is therefore to investigate the relationship between working capital management and the financial performance of listed food and beverage companies in South Africa. The reason for choosing food and beverage companies is that they deal with fast moving consumer goods and perishable goods. These goods spoil easily and cannot remain on the shelves for too long. For this reason, it is important that financial managers manage short-term assets and liabilities properly with the aim of enhancing their company's performance.

This chapter provides the background to the study by discussing working capital management and financial performance. It presents the problem statement, research objectives, research questions and the significance of the study. Lastly, the scope and demarcation and outline of the study are discussed.

1.2 Background of the study

The management of working capital management ensures that a company has adequate cash flow to meet its short-term debt obligations, and to increase its profitability (Ailemen & Folashade, 2014:21). It is important to manage working capital well, because it has a substantial impact on the financial performance of a company (Deloof, 2003:585). Failing to manage working capital efficiently may lead to the failure of the business.

The most commonly used measure of working capital management is the cash conversion cycle (CCC). This refers to the time span between the expenditure on the purchase of raw materials and the collection from sales of finished goods (Mathuva, 2010: 1; Charituo, Lois & Santoso, 2012:845; Omesa, Maniagi, Musiega & Makori, 2013:177-181). This study uses CCC components such as inventory conversion period (ICP), average collection period (ACP) and average payment period (APP) as measures of working capital management in line with the studies mentioned above. Deloof (2003:574) found that the longer the time lags, the larger the investment in short-term assets and short-term liabilities, and a long CCC might increase profitability as it leads to higher sales. However, Deloof (2003) found that profitability might decline with the CCC if the cost of higher investment in working capital increased faster than the benefits of holding more inventories or giving customers more trade credits.

The first element of the CCC is the inventory conversion period (ICP), which refers to the time a company takes to convert inventory into sales. Consistent with Charituo *et al.*, (2012:845), Makori and Jagongo (2013:8) and Mathuva (2010:1), this study will use ICP to measure working capital management. The average collection period (ACP) is the second element of CCCs and refers to the time a company takes to collect cash from its customers. Studies that have used ACP include Ahmadpour, Zare and Rostami (2012:281), Gakure, Cheluget, Onyango and Keraro (2012:685) and Mathuva (2010:1). The third element is the average payment period (APP). This refers to the time a company

takes to pay its suppliers, and is a measure of working capital management efficiency (Ahmadpour *et al.*, 2012:284; Makori & Jagongo, 2013:8; Waithaka, 2012:36).

A liquidity ratio measures the company's ability to pay its short-term obligations as they become due. It refers to the solvency of the company's overall financial position (Gitman, Smith, Hall, Lowies, Marx, Strydom & Van der Merwe, 2010:50). Niresh (2012:1) argues that the liquidity and profitability goals are contradictory in most decisions that a financial manager takes. For example, he observes that by following a lenient credit policy, a firm may be in a position to increase its sales, but its liquidity may tend to worsen. However, increasing profits at the expense of liquidity can lead to serious issues in companies. Therefore, there must be a balance between profitability and liquidity. It is for this reason that efficient working capital plays an important role in a company as it can enhance shareholders' wealth. Similar views are expressed by Muchina and Kiano (2011:279), Abbadi and Abbadi (2013:65), Singhania, Sharma and Rohit (2014:313), and Mun and Jang (2015:1).

1.3 Working capital management and financial performance

Working capital management is defined as the management of short-term assets and short-term liabilities and the financing of these assets (Gill, Biger & Mathur, 2010:2). In practice, working capital management has become one of the most vital issues for companies and many financial managers find it hard to identify the basic working capital components and suitable levels of working capital (Nazir & Afza, 2009:19). Erasmus (2010:1) suggests that it is essential that management ensure that the working capital investment is sufficient and fully utilised, since investing more in unused working capital could result in the erosion of value. Financial performance measurement generally focuses on types of financial ratios obtained from the financial statements of companies, and includes profitability ratios, liquidity ratios, activity ratios and debt ratios (Ismaila, 2011:6).

This study uses profitability to measure financial performance; specifically, return on assets (ROA), return on equity (ROE) and gross operating profit (GOP). Parrino, Kidwell and Bates (2012:97) argue that profitability ratios are some of the most important ratios used by shareholders, creditors and managers to analyse a company's performance. The higher the profitability ratios, the better the performance of the company will be. ROA is defined as the ratio of net profit after tax divided by the total assets (Agha & Mphil, 2014:375). ROA measures a company's effectiveness in using its assets to generate profit. On the other hand, ROE is defined as profit after tax divided by total equity (Ailemen & Folashade, 2014:4). GOP is defined as the cost of goods sold minus total sales over total assets minus financial assets (Napompech, 2012:22). GOP was selected as it relates more closely to the CCC and its elements.

Several international studies have been conducted on the relationship between working capital management and the financial performance of companies (Deloof, 2003; Banos-Caballer, Garcia-Teruel & Martinez-Solano, 2011). Deloof (2003:575) conducted a study on the relationship between working capital management and profitability in a sample of 1637 large non-financial companies for the period of 1992–1996 in Belgium. The study found a significant but negative relationship between GOP and the number of days in inventories, number of days in accounts receivable and number of days in accounts payable. Similarly, Banos-Caballer *et al*. (2011:521) investigated the link between working capital and profitability in small and medium enterprises (SMEs) in Spain. Their main finding was that working capital and profitability exhibit a concave relationship, in which companies maintain an optimal working capital level that balances the costs and benefits while maximising their profitability.

Abbadi and Abbadi (2013), Samiloglu and Akgun (2016) and Qurashi and Zahoor (2017) have conducted studies on the relationship between working capital management and financial performance. Findings of these studies indicate a mixed result with regard to the relationship between working capital management and financial performance. The reason

for this might be the variables used in these studies, the methodological approaches used by different researcher's and/the macro-economic environments within which these studies were conducted.

In Africa, most studies on working capital and profitability have been conducted in West and East African countries, with only a few in Southern Africa. Ademola (2014:105) conducted a study on the relationship between working capital management and profitability of listed food and beverage companies in Nigeria. Findings revealed that aggressive investment policy had a significant and positive relationship with profitability. In addition, the study found a significant and negative relationship between account collection period, inventory conversion period and average payment period and profitability.

Makori and Jagongo (2013:12) conducted a study on working capital management and profitability among manufacturing and construction companies listed on the Nairobi Securities Exchange (NSE) in Kenya. Their results indicated a negative relationship between ROA and companies' ACP but a positive relationship between ROA and the inventory holding period (INV) and the average payable period (APP). Other similar studies that investigated the relationship between working capital management and financial performance in West and East African countries include those by Mathuva (2010) and Mbithi, Muiruri and Kingi (2015). Findings of these studies indicated mixed results; that is, both a negative and a positive relationship between working capital management components and profitability.

Although the effect of working capital management on profitability is important, limited research has been done in South Africa. Important studies include the one by Louw (2014), who investigated whether the working capital management practices of listed retail companies in South Africa affected their profitability. The results of this study

indicated a negative relationship for economic value added (EVA) and ROE with the CCC but a positive relationship between the CCC and gross profit margin (GPM). Hence, it can be concluded that a decrease in the CCC positively affects retail companies' operating measure for return (the GPM) but does not affect their ultimate returns as measured using the ROE, ROA and the EVA (Louw, 2014).

Ncube (2011) investigated the impact of working capital management on profitability of South African companies listed on the Johannesburg Stock Exchange (JSE). The results revealed that there was a negative relationship between the CCC and profitability. Erasmus (2010), conducting research on working capital and profitability and the relationship between the net trade cycle (NTC) and ROA, found that there was a negative relationship between the NTC and ROA. However, these studies focused on listed companies in general, with one study focusing on listed retail companies, and none focused on listed food and beverage companies in South Africa.

The aim of this study is to investigate the relationship between working capital management and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016. It is important to manage working capital efficiently in order to increase the profitability of these companies, as they rely more on short-term capital management than companies that are concerned with construction and property.

1.4 Problem statement

It is important to management working capital efficiently as this has a direct effect on both liquidity and profitability of the company (Deloof, 2003). Mavutha (2010: 2) argues that if a company has significant sales owing to a soft credit policy, this ultimately increases the cash cycle. Thus, a long CCC in this regard may lead to an increase in the company's

profitability. However, the traditional view of the relationship between the CCC and profitability is that a longer cycle can harm the profitability of the company (Deloof, 2003).

The problem is that the nature of the relationship between CCC and company profitability is contradictory. Therefore, it is important to understand the effect of working capital management on a company's profitability. Several studies have been conducted internationally on the relationship between working capital management and financial performance (Charitou *et al.,* 2010; Gill *et al*., 2010; Banos-Caballer *et al.,* 2011; Abuzayed, 2012; Afrifa, Tauringana & Tingbani, 2014). However, only a few of these studies were based on emerging markets, particularly in South Africa.

This study therefore seeks to bridge this knowledge gap by assessing the relationship between working capital management and profitability in emerging markets, focusing specifically on listed food and beverage companies in South Africa in the period 2007 to 2016.

1.5 Research Objectives

1.5.1 Primary Objective

The overall objective of this study was to determine the relationship between working capital management and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016 by considering different components of working capital management vis-à-vis various measures of profitability.

1.5.2 Secondary Objectives

- To investigate the relationship between the Inventory Conversion Period (ICP) and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016.
- To assess the relationship between the Average Collection Period (ACP) and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016.
- To analyse the relationship between the Average Payments Period (APP) and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016.

1.6 Research Questions

In view of the above objectives, this study sought to address the following research questions:

- What is the relationship between the Inventory Conversion Period (ICP) and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016?
- What is the relationship between the Average Collection Period (ACP) and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016?
- What is relationship between the Average Payment Period (APP) and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016?

1.7 Significance of the study

The researcher is of the view that this study will be of benefit to the management of food and beverage companies in South Africa. Its findings may be beneficial in understanding the implications of and thus improving working capital management practices aimed at

increasing company performance. Furthermore, our findings may provide basic guidelines for financial managers in the food and beverage industry in an innovative business environment in South Africa. For academic researchers, the findings of this study may highlight further areas of future research, and inputs towards policy formulation and implantation for financial policy makers. This will contribute to current policies on working capital and the financial performance of food and beverage companies.

1.8 Scope and demarcation of the study

The study is limited to food and beverage companies listed on the Johannesburg Stock Exchange (JSE) from 2007 to 2016. This study focuses only on listed food and beverage companies due to the fact that these companies define their working capital differently from construction and property companies, and are generally under-researched as a result.

1.9 Limitations of the study

While caution was exercised when collecting data, there is a chance that the financial statements may have had inadequate faultless data, as they were subject to the companies meeting the requirements of the sector. In addition, there is a risk that the financial data might have been adjusted to exclude or include some information to account for working capital management. The findings of this study are specific to listed food and beverage companies in South Africa, and therefore cannot be generalised to other economic sectors in the country. The reason for this is that there are differences in needs and financial management among firms.

1.10 Outline of the study

In Chapter Two the review of the earlier work undertaken on the relationship between working capital management components such as inventory management, accounts

receivable and accounts payable management is discussed. Chapter Three discusses the concept of financial performance, the relationship between liquidity and the financial performance of listed food and beverage companies in South Africa. Chapter Four provides the methodological approach followed in addressing the research objectives and research questions. Chapter Five covers the analysis of the data and the research findings. Chapter Six concludes the study by discussing the key findings, and making recommendations and suggestions for further studies.

1.11 Conclusion

This chapter introduced the working capital components that have an impact on the financial performance of listed food and beverage companies in South Africa. There have been many international studies on working capital management and profitability; however, where Africa is concerned, most studies have been conducted in West and East African countries, with only a few studies focusing on Southern Africa and specifically South Africa. There is generally no consensus among these studies, and they have had mixed findings, that is both positive and negative relationships between working capital management components and profitability.

Chapter Two: Review of Literature on Working Capital Management

2.1 Introduction

This chapter focuses on the literature relating to working capital management components, and how they influence company performance. Working capital is the most important driver of company performance. Muchina and Kiano (2011:173) argue that working capital components have an effect on company performance. Nyamweno and Olweny (2014:9), who found that working capital components affect company performance, support this view.

Several researchers have found a significant relationship between working capital and financial performance (Agha & MPhil, 2014:380; Reheman, Afza, Qayyum & Bodla, 2010:160). Nevertheless, only a limited number of studies conducted in South Africa have focused on listed companies in general, and no specific study could be found that was related to listed food and beverage companies as a collective. For this reason, this literature review explores the relationship between working capital and financial performance, with specific reference to listed food and beverage companies in South Africa.

2.2 Theoretical literature

2.2.1 Theory of working capital

Scholars such as Glauteier (1971), Knight (1972) and Crum, Klingman and Tavis (1983) have discussed the theory of working capital management in detail. Walker (1964:21) argues that because of the lack of relevant literature, it might be believed that students of finance generally come to an agreement that theory of working capital is possible; however, if such a theory could be developed, it would be useless. In addition, Walker (1964: 22) observes that a working capital theory could be developed but that previous findings should not be used as the basis for such a theory. He developed three

propositions that could be applied in the establishment of strategies and policies that influence the amount of profit estimated on theories concerning sales volume and cost. Policies that influence the rate of profit are affected by the amount of risk that companies assume (Walker, 1964:23).

2.2.1.1 Working capital theory proposition number one

Walker (1964:23) explains that total capital in a company consists of non-current assets, current assets and the company's profitability influenced by the ratio of working capital to fixed capital. He adds that the first proposition is directly concerned with this concept, stated as follows: "If the amount of working capital varies relative to fixed capital, the amount of risk that a firm assumes is also varied and the opportunity for gain or loss is increased". Walker (1964:23) argued that this proposition means that a specific association exists among the degree of risk that management undertakes and the rate of return. Furthermore, this principle assumes that this association varies by changing the level of working capital. Too high a level of short-term assets can easily result in a company's realising an insufficient return on investment. Yet, companies with too few short-term assets may incur shortages and problems in sustaining smooth processes (Raheman & Nasr, 2007:279).

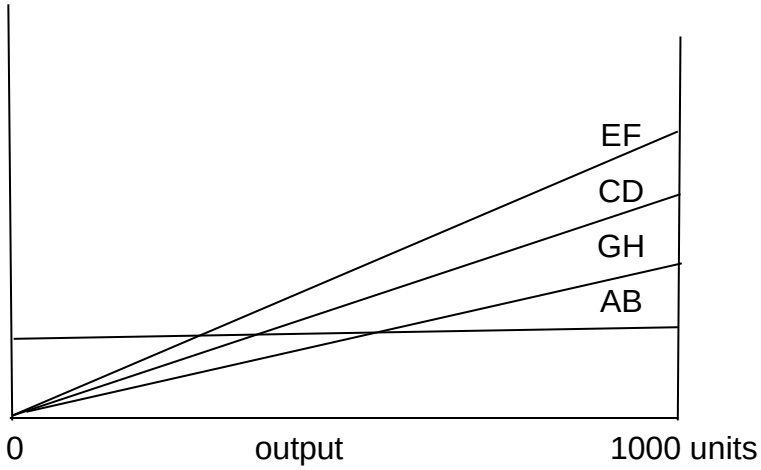
In supporting the concept that the ratio of working capital to fixed capital influences the level of risk and profitability, Walker (1964:24) affirms that it is important that the factors that influence the level of fixed and working capital are investigated. He argues that a company's volume of fixed capital is determined by its scale production, described as the aggregate of fixed assets with which the business operates and which is not subjected to alteration in the short term. However, working capital is used only when actual production is undertaken, hence if the output increases, the need for working capital also increases, and vice versa (Walker, 1964:24). The volume of production determines the amount of working capital that a company needs. Lazaridis and Tryfonidis (2006:3) argue that the perfect level of inventories would have a direct influence on profitability, as it will release

working capital resources. Hence, this will increase inventory levels in order to respond larger goods demand. Likewise, credit policy from suppliers and the credit period granted to consumers will have an effect on profitability (Lazaridis & Tryfonidis, 2006:3).

Walker (1964:24) claims that the correct amount is dependent upon factors that affect the amount of cash, inventories, receivables and other short-term assets needed to support a given volume of output, and management knowledge regarding risk. Sagan (1955:125) argues that a company whose sales are greater than its assets usually requires a bigger bank balance to support these sales than would a company of similar asset size but with smaller sales. Numerous companies use a rule of thumb and sustain a cash balance at some multiple of average daily sales (Sagan, 1955:125). For example, cash should equal five percent of sales over two months. When these techniques are used would pure coincidence if the company's ratio short-term assets and liabilities to non-current assets, risk and profitability were consistence with company's level of output (Walker, 1964:24).

Walker (1964:24) states that factors that affect the amount of working capital required are not easy to evaluate in a dynamic economy; however, informed management has been reasonably successful in making these evaluations. Walker (1964:25) believes that a problem exists because of a lack of management skills to evaluate working capital elements. Yet a much more serious problem for management is that of determining objectively the amount of risk to assume at each level of output. As illustrated in Figure 2.1 below, Walker (1964:26) indicates several levels of working capital used by a hypothetical company with an output capacity of 1000 units. Figure 2.1 shows that the company's investment in non-current assets remains unchanged as long as the output does not exceed 100 percent of capacity, as illustrated by horizontal line AB.

Figure 2.1: Hypothetical company's levels of working capital



Source: Walker (1964:26)

Lines EF, GH and CD in Figure 2.1 above represent different levels of conservatism on the part of working capital management. For example, the level of working capital illustrated by line EF describes a conservative policy regarding risk, yet the GH line illustrates the opposite. However, the level of working capital illustrated in line CD shows the policy of a management whose objective is to connect risk with the rate of return. The rate of return derived from the policy depicted by line EF will be lower than that received when the policy illustrated by line GH is followed; however, it should be stressed that the company is subjecting itself to more risk in the latter instance (Walker, 1964:26).

2.2.1.2 Working capital theory proposition number two

In proposition one, the risk related to the amount of working capital that a company applies was dealt with. On the other hand, proposition two is concerned with risk that is directly associated with the type of capital the company uses when financing its working capital requirements. Proposition two asserts: "The type of capital used to finance working capital directly affects the amount of risk that a firm assumes as well as the opportunity for gain or loss" (Walker, 1964:28). This proposition emphasises the point that if a company needed to reduce its risk to the minimum, it would use equity capital only. Yet in doing so,

the company minimises its opportunity for higher gains or losses on equity capital because it would not be taking advantage of leverage that could arise from trading on its equity (Walker, 1964:28).

If a company wants to take advantage of leverage, it should strengthen the amount of debt capital used in the financing of short-term assets. In so doing, the company must be prepared to accept more risk (Walker, 1964:28). Conversely, when the ratio of short-term liabilities to total assets is increased, the risk of technical insolvency also increases, since the increase in short-term liabilities in turn decreases net working capital (Gitman *et al*., 2010: 570). Gitman *et al*. (2010) further affirm that the conflicting effects on profitability and risk result from a reduction in the ratio of short-term liabilities to total assets.

Walker (1964:29) argues that the problem is not a matter of using debt capital, but rather of how much debt capital to use. This answered by the amount of risk that management can take at any given point in time. There is evidence that many owners of companies use certain rules of thumb to govern the amount of debt and equity capital used in the financing process (Walker, 1964:30). For instance, the most popularly applied rule is the debt to equity ratio.

Walker (1964:30) observes that there are two principal criticisms that that can be levelled against the debt to equity ratio: The first criticism depends on the manner in which a company regulates the debt to equity ratio. In most cases, management will accept the ratio that is recommended for its particular type of business; that is, a certain ratio might be employed if a specific type of company is concerned. There would be no problem if the ratio specifically reviewed the amount of risk the company could assume, which the debt ratio does not take into consideration.

Walker (1964:30) observes that there are many reasons for the conclusion that the selected ratio is not associated to risk is well grounded. Firstly, the ratio that is employed as a guide is an average ratio, which is not applicable to a particular company. In addition, Walker (1964:30) argues that the empirical studies that conceived the debt to equity ratio include several companies that many not possess the same characteristics as the company that intends to use the ratio. Secondly, Walker (1964:30) states that the data supporting the debt to equity ratio were obtained over several years.

The financial data for these years vary because the measurements that influence these data are constantly changing; however, the ratio is an average, a composite of all years of the study. Risk is associated with the future, and there is no guarantee that variables that affect the average will prevail in the future. In particular, the wrong criteria might be used to predict the amount and the degree of risk that the company will encounter (Walker, 1964:30). An average ratio is not applicable to a specific company within a sector because it is not possible to classify a company accurately. Lastly, Walker (1964: 32) observes that management does not include short-term debt in its method of debt to equity ratio calculations, although risk is inherent in all debt.

2.2.1.3 Working capital proposition number three

Walker's (1964:32) third proposition begins with the argument that the degree of risk inherent in each debt contract is affected by the nature of the debt contract, while there are many characteristics of the debt contract that influence a company's solvency. He maintains that the maturity of the debt contract is one of the most important aspects that should be considered when developing a working capital theory. This has led to the formation of the third proposition by Walker (1964:32), which he expresses as follows: "The greater the disparity between the maturities of a firm's debt instruments and its flow of internally generated funds, the greater the risk, and vice versa".

The degree of risk that a company can undertake is affected by the ability to pay its bills, hence in order to decide how much risk a company can take, it would be crucial to determine the company's capacity to settle its obligations (Walker, 1964:33). Walker (1964:33) states that, a company's short-term debt paying ability is dependent upon the receipt of internally generated funds. He argues that these funds are the turnover of short-term assets and short-term liabilities, rather than earnings, reported on the income statement. Many companies use some form of debt to finance part of their working capital requirements. Walker (1964: 33) argued that without the maturities of these debt contracts tend to coincide with the flow of internally generated funds, the company may experience a disruption of its financing process.

Working capital changes as it proceeds from one process to another level; cash changes to inventories to receivables and ultimately back to cash. Walker (1964:34) argues that if at the beginning cash is obtained from equity sources, the company will not be required to pay back these funds at a particular time and as a result, the capital does not carry a cash flow risk. Hence, if debt capital is employed to finance a part of working capital the company would follow a definite repayment schedule of the debt capital (Walker, 1964: 34). Thus, this schedule makes management concerned. The greater the maturity, the less the risk the company will assume; however, the shorter the maturity the higher the risk for the company (Walker, 1964:34). In addition, Walker (1964:34) argues that if the maturity is low, the company will have less time to accumulate sufficient funds to settle the debt.

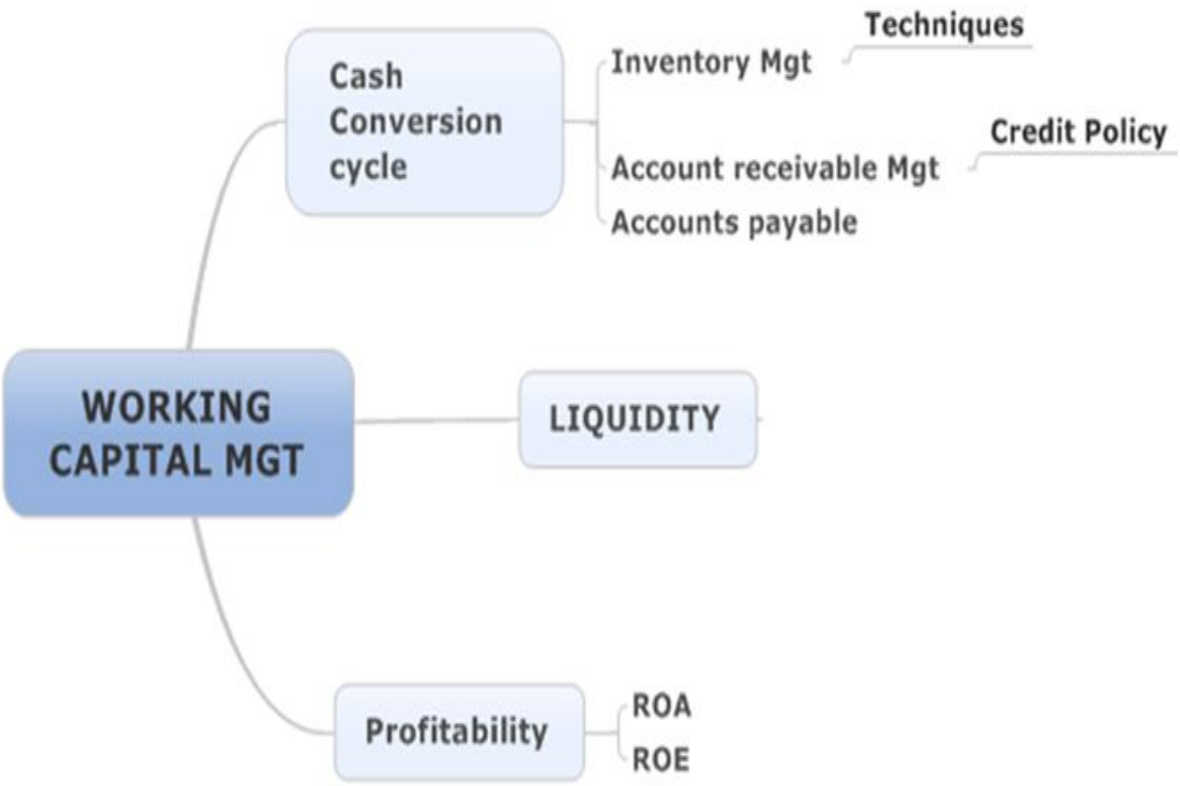
2.2.2 Summary

Walker's (1964) three propositions set the basis for working capital management theory. The essence of the theory is risk that is in most instances the opportunity for gain or loss diverges directly with the amount of risk that management undertakes (Walker, 1964:35).

Increasing the amount of working capital required and therefore enhancing the effectiveness of capital results in an increase in total profits. In addition, by using more risk capital, management can enhance the rate that it is getting on equity capital (Walker, 1964:35). Lastly, management can use more debt capital provided it can accurately determine the company's capital available to repay its obligations and schedule its maturity dates accordingly.

Smith (1973:51) maintained that short-term liabilities should be employed instead of long-term debt whenever their usage would lower the average cost of capital to the company. Walker's (1964:22) propositions are correct in principle; however, such collective strategies and propositions will perhaps provide little practical assistance for the company. Since the Capital Assets Pricing Model (CAPM) was not addressed in Walker's (1964) working capital theory, Gentry (1988:43) advocated that the integration of operating cash flows into an improved CAPM would highlight the risk and return trade off since it relates to cash more efficiently in Walker's (1964) theory. Walkers (1964) working capital theory propositions have not provided attention to the relationship between the production sale processes by putting value (Gitman & Schdeva, 1982:36). In addition, Gitman and Schdeva (1982:36) argued that the working capital cycle examines the delay between the time costs are paid and the time while the company collects proceeds.

Figure: 2. 2 Overview of working capital management



Source: Compiled by researcher

Figure 2.2 above provides an overview of the context in which working capital management is set for companies. The effective management of components in a company's cash conversion cycle as indicted in Figure 2.2 above drives the concept of working capital management. These different components directly or indirectly, in isolation or as a collective, influence the financial performance of companies. These components are the management of cash, inventory accounts receivable and accounts payable.

A review of these components and their influence on the financial performance of businesses is therefore essential. In addition, the management of working capital and the cash conversion cycle governed by policies and strategies assist managers in creating value for their shareholders. These working capital policies, such as the defensive working capital policy, the conservative working capital policy and the aggressive working capital policy, are crucial in enhancing company performance. Therefore, a review of these policies is necessary. Finally, the review of the literature will provide a snapshot of working capital policies and practices of companies within the food and beverage industry of South Africa.

2.3 The concept of working capital management

The concept of working capital management originated from the old Yankee peddler, who would borrow to buy inventory, sell the inventory to pay off the bank loan and then repeat the cycle (Besley, Brigham & Sibindi, 2015:300).

Berk and DeMarzo (2014:886) explain that working capital management deals with short-term assets such as cash, inventory and trade debtors and short-term liabilities such as trade creditors. It addresses the company's management of short-term capital, which is an essential element of corporate financial management. However, working capital management directly affects the profitability and liquidity of both small and large companies (Mwangi, Makau & Kosimbei, 2014:195).

Working capital requires the proper management of current assets and current liabilities (Islam & Mili, 2012:1). Berg (2016:299) argues that current assets may be less profitable than fixed assets since the returns generated from current assets are usually less than those from fixed assets. Essential current assets include cash, accounts receivable, and inventory, while current liabilities comprise accounts payable, accrued expenses, taxation

liabilities, short-term debt such as commercial bills, and provisions such as dividends declared but not yet paid (Birt, Chalmers, Brooks, Byrne & Oliver, 2011:564; Moles, Parrino & Kidwell, 2011:535; Ehrhardt & Brigham, 2011:644). Therefore, the choice of either of these assets would create opportunity costs for the business.

Nevertheless, holding current assets provides a safety margin, such as the appropriate inventory level, thereby contributing to future sales and profitability (Berg, 2016:299). Islam and Mili (2012:1) argue that a high level of current assets may have a negative impact on a company's profitability, while a low level of current assets may result in less cash and stock-outs, resulting in difficulties in maintaining smooth operations.

The goal of working capital is to ensure that the company is able to meet its operating expenditure while at the same time paying its short-term debt when due (Ukaegbu, 2014:1; Vural, Sokemen & Cetenak, 2012:488). Mousavi and Jari (2012:141) who argue that the fundamental objective of working capital management is to achieve and maintain the most effective balance between each element of working capital, support this view. Therefore, companies need to consider working capital management as an important tool in an organisation because is the lifeblood that releases cash from inventory, trade debtors and trade creditors. By managing working capital effectively, companies reduce their dependence on borrowing funds externally and use their profit for future investments. This leads not only to financial flexibility, but also increases profitability, creates value for companies and increases the level of employment.

Often, companies fail as the result of an absence of proper working capital management practices. This implies that accurately managed working capital management policies are essential for a company's survival (Hassan, Imran, Amajad & Hussain, 2014:117). It is therefore important to have a balance between profitability and liquidity; if practitioners do not scrutinise working capital, their companies are likely to fail. Financial managers should

be careful when dealing with working capital because of the way the latter changes from time to time. Adu (2013:47) argues that a suitable management of working capital is essential for any company and that is why it has become a broad measure of deciding the performance of a company. Working capital ensures the management and control of both current assets and current liabilities in order to maximise profitability and a good level of liquidity of any company. However, the process of managing suitable working capital policies can be complex.

Mun and Jang (2015:1) believe that classifying and sustaining perfect working capital levels is not an easy task as levels of working capital vary based on the economic circumstances as well as company specific aspects, such as capital intensity, profitability and size. They argue that working capital plays an important role in the daily operations of a business to ensure that the business is running smoothly. Similarly, Mwangi *et al.* (2014: 195) suggest that the critical elements of working capital should be managed in tandem by organisations if they are to perform successfully. Other researchers believe that working capital plays a critical role in comparison to the capital budgeting and financing decisions (Agyei & Yeboah, 2011:12; Mun & Jang, 2015:2). This means that it is important for companies to manage working capital effectively in order to enhance company performance.

2.3.1 Cash conversion cycle (CCC)

A company's CCC is one of the critical drivers of working capital and one that influences the financial performance of a company. The CCC is the most useful measure for the management of working capital. It is a process by which companies follow a cycle in which they purchase inventory, sell goods on credit and then collect accounts receivable (Brigham & Dave's, 2010:719; Smart & Megginson, 2009:652). The management of the CCC has been found to have some advantages for company performance. For instance, Ahmadpour, Zare and Rostami (2012:280) argue that a shorter CCC might enhance the profitability of a company by strengthening sales. However, they also note that if the cost

of investment in working capital is higher than its benefits, or if excessive credit is offered by the business, profits for the company might be decreased.

Ngwenya (2010:527) suggests that the CCC could be enhanced by minimising the amount of time that goods or services are held in inventory, and by collecting accounts receivable more rapidly and paying debts. The shorter the CCC, the greater the investment in working capital, which leads to a need for more capital (Hassan *et al.,* 2014: 118; Vural *et al.*, 2012:488). Consequently, a company with a shorter CCC is more productive because it turns its working capital over more times per year and this allows it to produce more sales per money in rand invested (Ngwenya, 2010: 527).

It is clearly important for financial managers to manage the CCC since it is a measure of working capital efficiency, which influences company performance positively or negatively. Moreover, it is important for companies to manage the CCC well in order to avoid company failure. Company failure will lead to higher unemployment, which ultimately affects the gross domestic product (GDP) of the country. CCC has three elements, including the average age of inventory, the average collection period and the average payment period Gitman *et al.* (2010:571). Gitman *et al*. (2009:602) provides the notation for the CCC as follows:

Cash conversion cycle = Average age of inventory + Average collection period – Average payment period

CCC = AAI + ACP – APP

The average age of inventory (AAI) is the first component of the CCC. This measures the time required to change raw materials into finished goods and then to sell those goods

(Besley *et al.,* 2015:301). The formula for calculating AAI is given as follows (Besley, *et al.*: 2015:301).

Average age of Inventory (AAI) = (Inventory ÷ Cost of goods) × 365

Average collection period (ACP) is the second element of the CCC. ACP has two components (Gitman *et al*., 2010:586), firstly the time to receive process, and secondly to collect the payment once this has been mailed by the customer. Megginson, Smart and Graham (2010:748) provide the formula for calculating ACP as follows:

Average collection period (ACP) = (Accounts receivable ÷ Average sales) × 365

Average payment period (APP) is the average length of time between the purchase of raw materials and labour and the payment of cash for them (Besley *et al.,* 2015:302). The formula for APP is as follows (Yogendrarajah & Thanabalasingam*,* 2014: 4):

Average payment period (APP) = (Accounts payable ÷ Cost of goods sold) × 365

The components of working capital management consist of inventory management, accounts receivable management, cash management and accounts payable management and each will be discussed in the following sections.

2.3.2 Inventory management

AAI is the first element of the CCC. Smart and Megginson (2009:657) observe that, although inventory management is the responsibility of production and operations managers, it is also a major concern of the financial manager because of the large investment involved. The researchers state that it is important to sustain appropriate

inventory to meet demand and to minimise stock outs that can result in loss of sales. The two objectives of inventory management are to ensure that the inventories required to strengthen operations are available and that the costs of ordering and carrying inventories are at their lowest possible level (Brigham & Dave's, 2007: 733; Gitman *et al.*, 2010:574; Megginson *et al.*, 2010:735). It is important for financial managers to find a balance between the benefits of holding inventory and the costs of holding it in order to increase company performance.

Lai (2012:11), states that there are three reasons for keeping inventory of an organisations. Firstly, raw materials are held to ensure that the operation process runs effectively and is not disturbed by a lack of raw materials. Secondly, inventories of intermediate goods that occur in the middle of the operations process need to be used to continue the process. Thirdly, holding enough finished goods to avoid the risk of losing sales and avoiding large ordering and administration costs, which result from replenishing inventory.

Holding too much inventory demands more space and creates additional costs in the form of storage costs, potential spoilage and obsolescence. On the other hand, where a company has low inventory, it might suffer a loss on sales when demand increases, while more inventory takes up capital that could be used elsewhere more efficiently (Adu, 2013: 20; Brooks, 2013:430). Therefore, if companies do not manage inventories properly; they will face serious problems relating to their long-term objectives and survival.

Condensing inventory produces higher returns by continuously enhancing cash flow, lowering utilising cost level, minimising the asset base and lowering capital spending (Hassan *et al.*, 2014:118). Consequently, to be competitive in the market, companies must reduce their price; this can be done by keeping the cost of stocking inventory at a fair and sensible minimum. Depending on the sector in which the company is operating,

these inventories may consist of three different elements, such as raw material, work in progress and finished goods (Besley *et al.*, 2015:327; Rehn, 2012:1).

2.3.2.1 Raw materials

Besley *et al.* (2015:327) highlight the point that raw materials constitute the new inventory items purchased from suppliers. They are the materials a company purchases to change into finished products for sale. They maintain that, as long as the company has raw materials, delays in ordering and delivering from suppliers will not affect the production process. Kungu (2015:26) argues that raw materials are inventory that has been bought and will be used in the process of producing the final product. The reason for storing raw materials is that such materials are taken up for production processes to avoid interruptions in the delivery of raw material, thereby avoiding production interruptions (Sinha, 2009:429).

Capkun, Humeri and Weiss (2009:802) conducted a study on the relationship between inventory and the financial performance of manufacturing companies in the United States of America (USA) over a period of 27 years from 1980–2006. Their study used raw materials, work in progress and finished goods to measure inventory performance. It also used gross profit margin and operating profit margin as measures of financial performance. Their results revealed a strong relationship between inventory management and financial performance. However, their study also provided conflicting results on the strength of the correlation between these inventory measures. The results indicated that work in progress had a stronger relationship with gross profit margin, while finished goods had a stronger relationship with operating profit margin. This implies that, while different components of inventory have differing effects on performance, these components nevertheless affect company performance.

2.3.2.2 Work in progress

Work in progress is the second focus of inventory management. Besley *et al.* (2015:327) explain that work-in-progress refers to inventory items that are in different phases in the production process. If a company has work in progress in every phase of the production process; it will not have to shut down production if a problem occurs at one phase or another. The raw material and finished goods must be maintained in the production area. Work in progress must be carefully examined to justify how long it takes for products or goods to be cleared for sale. This is usually achieved through quality control procedures (Birt, *et al.*, 2011; Cinnamon, Helweg-Larson & Cinnamon, 2010).

2.3.2.3 Finished goods

Finished goods refer to the stock in the warehouse waiting for sale and delivery to customers (Mangesha, 2014:14). Such goods might be in the storeroom area for a long period, waiting for sale to clients. Mangesha (2014:14) suggests that managers of companies determine the alternatives to the slow movement of goods. Sales and production planning can minimise the need for finished goods or services (Fanau, 2011:11). Capkun *et al.'s* (2009:802) study on the relationship between inventory and the financial performance in manufacturing companies found that finished goods' inventory performance had a stronger relationship with operating profit margin. This suggests that finished goods have an influence on company performance.

2.3.3 Accounts receivable management

Accounts receivable are outstanding amounts owing to a company, where the company has delivered goods or services and extended credit to clients. In today's economy, most sales are made through credit and this trend is increasing. Companies using credit sales find themselves in difficult situations when attempting to measure revenue and manage their assets. The main benefit for companies from offering trade credit is that it can increase company sales. The objectives for managing accounts receivable are to collect them as soon as possible without losing sales because of high-pressure collection

techniques (Gitman *et al*., 2010:580; Horngren, Sundem, Elliot & Philbrick, 2012:62; Meggison *et al*., 2010:738). It is essential for financial managers to manage accounts receivable properly in order for companies to receive payments from customers on time. However, in order to increase company sales, consumers must be given a credit transaction policy.

Credit customers who pay late or who do not pay at all only aggravate the accounts receivable problem (Mangesha, 2014:17). While credit is essential for the growth of any company, a company that sells goods or services but does not receive cash for these sales is said to have granted trade credit (Kungu, 2015:16). It is essential for financial managers to develop policies that can govern the benefits of offering credit with the related costs.

A company can control its accounts receivable by practising credit management: decisions in connection with terms of sale, credit analysis and decision and collection policy have to be made (Rehn, 2012:10). It is important for financial managers, employees and customers to understand credit policy. The crucial variable that affects demand for a company's products are sales prices, product quality, advertising and the company's credit policy (Besley *et al.*, 2015:322). It is therefore for this reason that credit policy is regarded as the most vital approach of managing and controlling accounts receivable.

In order to ensure that there is an optimal investment in receivable, a company is required to have an applicable credit policy (Kungu*,* 2015:17). It is important for companies to have good credit policies that can benefit customers and the company. If companies have good credit policies, this may result in an increase in company performance. Megginson *et al.* (2010:739) assert that credit policy consists of credit standard, setting credit terms, credit period and collection effort.

Credit standards are the first and the most essential element of accounts receivable management. Setting credit standards entails applying procedures for examining which consumers should receive credit and how much credit should be given to them (Smart & Megginson, 2009:666; Megginson *et al.*, 2010:739). They argue that much of the focus is on ensuring that a company does not accept substandard customers. However, a company must take care not to set the standards so high that potentially good customers are rejected. Kungu *(*2015:19) contends that if the company's credit standards are too harsh, the volume of credit sales will be smaller but the company will have little collectable debts. It is important for financial managers to manage credit sales carefully in order to increase company performance.

Setting credit terms is concerned with the period for which the company should extend credit. It takes into account the type of discount the company should provide to encourage credit consumers to make early payments (Fanue, 2011:13). Credit terms are therefore terms of sale for consumers. Klapper, Luc and Raghuram (2013) conducted a study on trade credit contracts at the level of matched customer-supplier pairs. They found that good consumers might exercise market power in order to gain favourable trade credit terms with weaker business partners.

Mathuva (2010:10) on the other hand, conducted a study on the influence of working capital management components on corporate profitability among listed firms in Kenya. His study revealed that the less time it takes customers to pay bills, the more cash is available to purchase inventory, and hence the higher sales realised leads to greater profitability of the firm. The results also indicated that a more obstructive credit policy that gives consumers less time to make payments increases the performance of a company.

In addition, an effective and timely collection of debtors ensures that bad debt losses are kept to a minimum and that the average collection period is shorter (Snha, 2009:422). It

is important for companies to be careful when they set collection policies because if their policy is not set correctly, it can result in customers turning their backs; as a result, company performance may fall.

Gitman *et al.* (2010:586) argue that changes in the credit period, that is, the number of days from the commencement of the credit period until full payment of an account is made, also affects a company's profitability. They argue that increasing a company's credit period from 30 days to 45 days should increase sales and positively affect profit. However, the decision on setting the credit period is tough for the seller. It is for this reason that an extensive credit period usually includes default risk.

2.3.4 Cash management

Cash management as a process aims at ensuring that enough cash is available to meet the operational expenses of the company in order to reduce the opportunity costs of holding cash (Naser, Nuseibel & Al-Hadeya, 2013:26). Oluoch (2014:13) argues that with the use of basic cash management tools and techniques, cash management becomes a corporate asset that contributes directly to the bottom line. These authors believe that efficient cash management involves the determination of an optimal amount of cash to hold by considering the trade-off between the opportunity cost of holding too much cash and the trading cost of the holding too little (Ross, Westerfield, Jaffe & Jordan, 2008:578).

Waithaki (2012:16) believes that the objectives of cash management are best achieved by speeding up the working capital cycle, particularly the collection process, and investing the surplus cash in the short-term assets of profitable projects. Hence, if financial managers manage cash efficiently then it can have a positive impact on company performance. Cash therefore needs to be managed effectively in order for companies to enhance their performance.

2.3.5 Accounts payable management

Most often, companies buy goods on credit from other companies. This is usually recorded as accounts payable in the context of business. These transactions occur when merchandise is bought but no formal note is signed to indicate the buyer's liability to the supplier (Brigham & Daves, 2007:739; Gitman *et al.*, 2010:606). These researchers argue that, in effect, customers agree to pay the supplier the amount needed in accordance with credit terms normally stated on the suppliers invoice. In this way, payment made by the customer is recorded as accounts receivable on the supplier's side and accounts payable on the customer's side. It is essential for companies to ensure that they have a good relationship with their suppliers to guarantee a consistent supply of inventory (Kungu, 2015:23).

As a result, part of this practice is for the cash manager counterparts the invoice to both the securing order and receiving information to ensure that the goods were well-organised by officials and that they were really received (Meggison *et al,* 2010:774). Some scholars believe that it is essential for financial managers to manage accounts payable cautiously in order to ensure that they do not get into debt and do not have difficulties paying off the debt when it becomes due (Du Toit, Erasmus, Kotze, Ngwenya, Thomas & Viviers, 2013: 405; Smart *et al.*, 2009:706). It is important to manage accounts payable to ensure the effective management of working capital. It is also essential for the management of companies to have a good relationship with their supplies in order to avoid delays in stock.

Companies need to avoid delays in paying their suppliers, as they will lose cash discounts as well as the trust of their suppliers (Kungu, 2015:23). When financial managers do not make payments on time, interest is charged. If, however, these payments are made earlier, this increases the CCC and negatively affects the company's performance (Louw, 2014:13).

Yogendrarajah and Thanabalasingam (2014:2) argue that the delay in payment to suppliers gives a company a chance to evaluate the standard of the goods and can be a cheap and adaptable source of financing the company. On the other hand, paying late can be very expensive if the company forfeits a discount for paying early. Consequently, companies need to try to extend the duration of payment as long as possible since they can use these financial benefits to finance other investments until payments can be made (Mangesha, 2014:17).

Mathuva (2010:11) found that an increase in the number of days' payable by one day is related to an increase in profitability. However, Kulkanya (2012:229) found that accounts payable have a significant negative relationship with profitability and managers do not have an impact on the gross operating profit. Delaying payments to suppliers is a route through working capital management regulation. Companies must endeavour to lag their payments to creditors as long as possible, taking care not to endanger their business association with them (Mathuva, 2010:5). Companies need to make payments earlier to suppliers in order to avoid bad relationships with them that could result in lower company performance.

In conclusion, working capital requires the proper management of current assets and current liabilities. It is essential that financial managers manage their working capital in order to avoid company failure. This section also discussed the CCC as a measurement of working capital. It was found that the CCC can be enhanced by minimising the amount of time that goods or services are held in inventory, collecting accounts receivable more rapidly and paying debts bit by bit (Ngwenya, 2010:527). It is for this reason that companies should manage the CCC effectively.

The components of working capital management such as inventory management, accounts receivable management, cash management and accounts payable management were also discussed in this section. The literature indicates that holding too much inventory requires a great deal of space and as a result creates additional costs in the form of storage costs, potential spoilage and obsolescence. On the other hand, companies that have low inventory suffer a loss on sales when the demand for their product increases, while a larger inventory takes up capital that could be used effectively elsewhere.

The literature also indicates that the level of accounts receivable could be minimised by decreasing credit limits given to clients. This is not a good way of managing working capital because it can destroy relationship with clients during an economic boom. The literature shows that it is important for financial managers to apply basic cash management tools that contribute directly to their business bottom line. Furthermore, financial managers must manage cash effectively in order to achieve company performance. When managers do not make payments on time, interest will be charged. However, if payments are made earlier, this may lead to an increase in the CCC, and as a result, company performance may decrease.

It was also found that it is important for companies to follow or use working capital policies in order to achieve or maximise shareholder wealth. Hence, working capital policy must be considered when managing the liquidity components for the smooth running of operations on a daily basis in business (Arnold, 2008:557).

2.4 Working capital policy and financing techniques of working capital

The management of working capital and the CCC are governed by policies and strategies, which assist managers in creating value for their shareholders. Beasley and Brigham, (2008:347) explain that working capital policy deals with the company's fundamental

policies directed at the classification and financing of current assets. Mangesha (2014:20) defines working capital policy as the strategy that provides guidelines for managing current assets such as accounts receivable, inventory and cash and current liabilities such as accounts payable and accruals.

Nazir and Afza (2009,19:30) argue that companies can minimise financial risk and improve overall performance if they have a good working capital management policy. Finau (2011:18) affirms that a productive working capital policy for companies is essential to ensure an optimal level of growth, profitability and finally, sustainability. Some researchers believe that managers of companies need to spend more time managing working capital effectively to maximise their company's value in a way that balances profitability (Preve & Sarria-Allende, 2010:567; Sharma, 2009:173). It is therefore essential that managers have a good understanding of working capital policies if they are to enhance company performance.

Corporate finance working capital policies can be classified into three categories, namely defensive or hedging, aggressive, and conservative working capital policies (Arnold, 2008:535).

2.4.1 Defensive working capital policy and financial performance

Arnold (2008:530) argues that a defensive working capital policy decreases risk by decreasing current liabilities. It also affects profitability, however, because it relies on long-term debt that carries high interest rates that increase the cost of financing (Arnold, 2008:530). Therefore, companies that prioritise cash savings, higher stock/inventory levels and substantial credit benefits may not be prepared to take risk.

This strategy works best for companies that are working in uncertain economic conditions where the future demand or supply and the cost of debt are uncertain. In such situations, it is prudent to have a stable level of current assets (Mangesha, 2014:21). This also requires higher levels of inventory to meet the rapid increase in demand and to minimise the risk of process discontinuation. It is essential for managers to understand this policy in order to improve company performance.

2.4.2 Aggressive working capital policy and financial performance

An aggressive investment policy with high levels of non-current assets and less investment in current assets may generate net income for a company (Nyabuti & Alala, 2014:213). This is the belief of Islam and Mili (2012:1), who argue that an aggressive working capital investment policy has assumptions of greater profitability but requires greater liquidity. They argue that an aggressive working capital investment policy reduces investment in current assets when compared to long-term investment. However, it may also lead to risk of having inadequate liquidity for day to day operations of companies and for payment of short-term debts (Islam & Milli, 2012:1).

The goal of working capital management is to ensure that relationships indicated in an analysis are the result of the effects of company performance on working capital management (Hassan *et al.*, 2014:116). Hassan et al (2014:116) argues that through decreasing working capital, investment (aggressive strategies) could influence the profitability of the company positively, if the company decreases short-term assets.

Arnold (2008:536) claims that aggressive working capital increases the risk of default because a company might face a lack of resources to meet short-term liabilities. It also provides a high return, however, as high return is associated with high risk. Arnold (2008) argues that with an aggressive working capital management policy, all equipment and

short-term assets must be financed from short-term sources, and some of the non-current assets' financing are even financed from short-term sources. This approach could therefore lead to a more risky finance mix, lower cost and higher net income (Mangesha, 2014:21).

Amiri (2014:180) conducted a study on the relationship between an aggressive investment working capital policy and an aggressive financing working capital policy with profitability on Tehran's Stock Market. The sample consisted of 93 companies listed on the Exchange for a period of five years (2004 to 2008). This study found no relationship between an aggressive investment policy and the return on assets or equity.

Nazir and Afza (2009:27) conducted a study on the relationship between aggressive and conservative financing policies and the impact on profitability among listed companies in Pakistan. The study, which consisted of 204 companies listed on the Karachi Stock Exchange (KSE) from 1998 to 2005, found a negative association between profitability and capital investment and financing policies. They concluded that companies with an aggressive financing policies indicated lower profitability.

In addition, they found that, as book value performance was distressed, managers could not produce more returns on assets by following an aggressive approach towards short-term assets and liabilities. On the other hand, investors assigned greater value to companies that endorsed an aggressive approach (Nazir & Afza, 2009:28). The researchers claimed that these results were contrary to studies conducted earlier in Pakistan, which claimed that an aggressive strategy would lead to higher returns. The result of Nazir and Afza's (2009:28) study differed from the results of the study conducted by Amiri (2014:180).

2.4.3 Conservative working capital policy and financial performance

Islam and Mili (2012:1) defined a conservative working capital policy as a policy that has a lower risk and lower return policies. Al-Shubir (2010:167) argues that a conservative working capital policy reflects a demand for additional capital that companies can finance internally, a decrease in free cash inflow externally, usually via lines of credit. Nyabuti and Alala (2014:213) contend that a more conservative working capital policy uses a higher cost of capital but reschedules the principal reimbursement of debt, or avoids debt entirely by using equity. Mangesha (2014:22) suggests that this policy not only decreases the risk of default but also decreases the opportunity cost of additional investment in short-term assets. It is therefore important for financial managers to understand these working capital policies in order for them to make decisions that will improve company performance.

Some empirical studies explore the use of conservative working capital policies. For instance, Islam and Mili (2012:4) conducted a study on the relationship between working capital policies and performance, using five listed pharmaceutical companies in Bangladesh over a period of five years. They noted that pharmaceuticals have very similar policies concerning working capital investment, equivalent to working capital financing policy. Their main findings revealed a significant difference in approving working capital investment and working capital financing policies in the middle of the selected pharmaceuticals; yet, there was a link between the of aggressive working capital investment policies conforming to conservative working capital financing policy of the pharmaceuticals.

Bandara and Weerakoon (2012:15) conducted a study on the impact of working capital policies on a firm's value, using a sample of 74 companies listed on the Colombo Stock Exchange (CSE) in Sri Lanka. Their results revealed a significant negative relationship between a conservative working capital policy and company value as measured using the market value added (MVA) ratio. The result of their study was inconsistent with those of Islam and Mili (2012 4).

2.4.4 Effect of investment in working capital on company performance

Short-term investments are made temporarily in marketable securities with cash that would otherwise be inactive. These investments are liquid and companies usually expect to convert items in these accounts into cash within 12 months after the date of the balance sheet. Short-term investments include any kinds of bonds, notes and stocks that can be ready to be sold (Gitman *et al*., 2014:608; Horngren *et al.*, 2012:498).

Too high an investment in current assets such as cash and marketable securities, accounts receivable and inventory, may minimise the value of a company and reduce profitability (Van Horne & Wachowicz, 2008:348). These scholars argue that only an adequate level of current assets is required to fulfil payments and debts of current liabilities. If the current assets are not managed properly then the opportunity costs will be high. For instance, holding large amounts of inventory offers a smaller return. This implies that return on investment on short-term assets must be greater than the required rate of return in order to cover all the business obligations (Gitman *et al*., 2010:575). It is therefore important for the companies to avoid investing too heavily in current assets in order to avoid lowering company performance.

2.4.5 Short-term financing and financial performance

Any a company has many preferences when it decides to aggregate short-term financing, (Gitman, 2009:547), financing of working capital increases the composition and structure of business financing in terms of short-term and long-term debt. Al-Shubiri, (2012:167) conducted a study on the impact of aggressive and conservative working capital investment and financing policies using cross-sectional regression models between working capital policies and profitability, including the risk to the firm. The results revealed a negative relationship between a firm's profitability measures and the degree of aggressiveness of working capital investment and financing policies.

Hill, Kelly and Highfield (2010:143) showed that companies with a larger internal financing volume and capital market access maintain a higher working capital level. The main aim of any company is to enhance profit. However, sustaining liquidity of a company is essential in any organisation. A problem arises if a company increases profit at the expense of liquidity, which can lead to serious difficulties for a company. For this reason, there must be a balance between a company's profitability and liquidity. For example, if financial managers ignore the importance of profit in an organisation, the company cannot survive in the long term; on the other hand, if financial managers do not take care of liquidity the company will end up bankrupt or liquidated.

2.5 Conclusion

This chapter provided a detailed discussion of working capital management, taking into account both theory and earlier empirical studies. Walker's (1964) three propositions that have set the tone for working capital theory were discussed. The CCC as a measurement of working capital management was also considered in this chapter. Working capital policies such as defensive working capital, aggressive working capital and conservative

working capital on financial performance were analysed. Lastly, the effects of investment in working capital on company performance and short-term financing were explored.

Financial performance factors, liquidity and empirical studies on the relationship between working capital management and financial performance in international countries, Africa and the country of focus, South Africa, are covered in the next chapter.

Chapter Three: Working capital management and financial performance

3.1 Introduction

As indicated in Chapter Two, researchers continue to debate the relationship between working capital management and financial performance. This is because there has been divided opinion on the relationships between variables and the appropriate proxies used to measure such relationships.

This chapter discusses the theories of financial performance such as the Clark theory of profitability and trade-off between profitability and risk. The extensive literature on the concept of financial performance and measurement is reviewed. The chapter opens with a review of empirical literature on the relationship between liquidity and financial performance. Thereafter, a review of empirical studies pertaining to the relationship between working capital and financial performance is presented. This review expounds on studies conducted on this relationship in both international and African economies. The chapter concludes with a review of literature on the relationship between working capital management and financial performance that is, relevant to the South African context.

3.2 Theoretical literature

3.2.1 Clark's theory of profitability

Clark starts (1988) his theory with an analysis of a profit-less economy and takes into account its key futures. Profit- less economies and significant differences were identified to show the cause of profit (Ajao & Small, 2012:10). A profit-less economy is referred to as a static state, in which all factors are constant and not subject to change, and the market is assumed perfect; however, the absence of monopoly and entrepreneurial

effects is rewarded according to management wage levels (Ajao & Small, 2012:10). There is perfect mobility and flow of all economic units in a frictionless environment; in short, all impediments to perfect competition are dissolved.

"The society acts and lives but does so in a changeless manner" (Siddiqi, 1971). Siddiqi argues that any changes in these factors will produce a tremor in the system, yet the economy will adjust and settle into a new equilibrium. Therefore, changes in population and capital will result in corresponding fluctuations in wages and interest rates; the economy will absorb these changes and settle back to a static state (Siddiqi, 1971). Likewise, changes in techniques of production will affect output and prices; adoption of the same techniques by other producers will cause a shift in the equilibrium, but once these become global, the equilibrium will continue.

3.2.2 Trade-off between profitability and risk

Profitability is the association between sales and cost created by using the company's current assets and non-current assets in productive activities (Gitman *et al*., 2010:569). On the other hand, risk is the probability that a company will be unable to pay its bills on time. A company that is unable to pay its bills on time is referred to as technically insolvent (Gitman *et al*., 2010:569). The greater the net working capital, the more liquid the company is and thus the less its risk of becoming technically insolvent. Based on the above definitions of profitability and risk, a trade-off between these definitions is indicated by looking at changes in current assets and current liabilities (Gitman *et al.,* 2010:569).

In showing how changing the level of the company's current assets ratio influences its profitability and risk, trade-off will be indicated by using the current assets to total assets ratio. "This ratio indicates the percentage of total assets that is current" (Gitman *et al.*, 2010:569). When short-term assets increase, profitability decreases because fixed assets are more profitable than short-term assets and they add more value to the product than that provided by short-term assets (Gitman *et al.*, 2010:569). On the other hand, the risk

influence decreases as the current assets to total assets ratio increases. An increase in short-term assets enhances net working capital and as a result decreases the risk of technical insolvency (Gitman *et al*, 2010:569).

3.3 The concept of financial performance

Various authors define financial performance in different ways. Pendey (2010:345) explains that financial performance is the level of performance of a business over a specified period, expressed in terms of profits and losses. Financial performance is a subjective measure of how efficiently a company uses its assets to generate revenues. It is used as a general measure of a company's overall financial health over a given period and is used to compare similar companies across the same industry or to compare companies across different industries (Nyabuti & Alala, 2014:213).

Financial performance can be measured in different ways since it depends on the types of financial ratios obtained from the financial statements of companies. These measures include profitability ratios, activity ratios, liquidity ratios and debt ratios. In general, all entities have to set their business goals and evaluate their success by using this performance measurement process (Birt *et al*., 2011:423; Ismaila, 2011:6).

Profitability ratios measure management's capacity to use a company's assets efficiently to generate sales and profit (Parrino, Kidwell & Bates, 2012:97). Parrino *et al.* (2012:97) argue that profitability ratios are some of the most important ratios used by shareholders, creditors and managers to analyse a company's performance. The higher the profitability ratios, the better the performance of a company will be.

Profitability is measured using income and expenses. It enables financial analysts to evaluate the company's profits concerning a given level of sales, a certain level of assets, or the owner's investment (Agha & Mphil, 2014:378; Gitman *et al.*, 2010:56). A company that does not make a consistently positive net income cannot attract external capital. It is therefore important for shareholders and managers to be profit driven in order to ensure company survival. The ratios determined thus far (activity ratios, current ratio, acid test ratio, and debt ratio) provide constructive clues as to the usefulness of a company's operations. However, the profitability ratios also show the mixed effects of liquidity, asset management and debt on operating results (Brigham & Dave's, 2007: 259).

While there are many measurements of profitability, this study uses three proxies for profitability: the return on assets (ROA), return on equity (ROE) and gross operating profit (GOP). ROA is defined as the ratio of net profit after tax divided by the total assets (Agha & Mphil, 2014:375). The formula to calculate return on total assets is profit for the year less preference share dividends divided by total assets (Gitman *et al.*, 2014:73). The formula is provided below:

$$\text{Return on total assets} = \frac{\text{Profit for the year - Preference share dividend}}{\text{Total assets}} \qquad \textbf{(3.1)}$$

This ratio is essential because it can be used to determine how effectively financial managers employ debt before it is invested in a company's assets (Ul Hassan *et al.*, 2014:119). The ratio determines whether the amount comes from investors or creditors (Ul Hassan *et al*., 2014:119). Several similar studies have used this ratio and obtained credible results in the past. These include Agha and Mphil (2014:380), Mumtaz, Rehan, Rizwan, Murtaza, Jahanger and Khan (2010: 95) and Mwangi, Makau and Kosimbei (2014:203). Mwangi *et al.* (2014:203) investigated the effect of working capital management on performance using listed non-financial companies in Kenya. While their

analysis was restricted to listed companies, their measure of performance ROA indicated a significantly positive relationship with several working capital components.

Agha and Mphil (2014:380) conducted a study on the impact of working capital management on profitability using listed companies in Pakistan. These researchers also used the ROA to measure financial performance. They found a positive relationship between working capital components and profitability. In contrast to these studies, Mumtaz *et al.* (2010:95) conducted a study on the impact of working capital management on financial performance, using a much smaller sample of listed companies in Pakistan. They found a negative relationship between working capital components and financial performance.

Shareholders are entitled to the excess net income; while the rate of dividend is not fixed the earnings may be circulated to shareholders or retained in the company (Ajao & Small, 2012:8). Ajao and Small add that a return on equity is calculated to establish the profitability of an owner's investment. Ultimately, the most important accounting ratio is the ratio of net profit to common equity, which measures the return on common equity (ROE) (Brigham & Daves, 2007:262). The formula is given below:

$$\text{Return on common equity (ROE)} = \frac{\text{Net income available to common stockholders}}{\text{Common equity}} \qquad \textbf{(3.2)}$$

Stockholders invest to get a return on their investment and this ratio articulates how well they are doing in an accounting logic (Brigham & Dave's, 2007:262).

GOP is defined as the cost of goods sold from total assets minus financial assets (Almazari, 2014:151). The formula is provided below:

$$\text{Gross operating profit (GOP)} = \frac{\text{(Sales - cost of goods sold)}}{\text{(Total assets - financial assets)}} \quad \textbf{(3.3)}$$

The reason for using gross operating profitability as a measure of financial performance is to relate operating success or failure to an operating ratio and to associate this proxy with other operating proxies such as the CCC (Lazaridis & Tryfonidis, 2006:5). Furthermore, the researcher wants to eliminate the involvement of any financial activity from operational activity that might distress overall profitability; hence, financial assets are deducted from total assets.

It is important for the managers and employees to understand ROA as a measure of profitability if they are to make the correct investment decisions for their companies. When managers and employees understand ROA as a measure of profitability, they can apply it correctly when making investment decisions. This can lead to an increase in a company's production, which may result in an increase in employment, which is good for the economy of the country. While a company's ROA, ROE and GOP are good determinants of financial performance, certain other factors contribute to financial performance. An efficient mix of working capital components also plays a crucial role in enhancing financial performance. It is therefore necessary to assess the impact of liquidity on financial performance.

3.4 The relationship between liquidity and financial performance

The fundamental role of working capital management should be to manage an efficient mix of the company's working capital components. However, it should also ensure the effective management of a company's liquidity during its day-to-day operations. Liquidity and profitability are fundamental elements of all companies. A liquidity ratio measures the company's ability to pay its short-term obligations as they become due. It refers to the solvency of the company's overall financial position (Gitman *et al.*, 2010:50). Declining

liquidity ratios are a common of financial distress or bankruptcy. Liquidity ratios are therefore good indicators of cash flow problems (Kungu, 2015:29; Megginson, Smart & Graham, 2010:40).

Liquidity management is an essential aspect of financial management and influences returns and risks associated with short-term financial obligations (Al-Shubiri & Aburumman, 2013:95). Companies with long-term investments can become bankrupt without good liquidity management (Adu, 2013:40). When liquidity is low, risks and profits tend to be high, and when liquidity is high, risk and profit tend to be low (Bhunia, 2010: 9).

There are two main ratios used to provide a guideline to the liquidity position of a company. These are the current assets ratio (CAR) and the acid test ratio (ATR). This study will use the CAR since it is the most commonly used financial ratio when assessing a company's ability to meet its short-term obligations (Finau, 2011:41; Agha & Mphil, 2014:376). This ratio compares a company's current assets to its current liabilities and its formula is obtained as a ratio of a company's current assets to its current liabilities (Brigham & Dave's, 2007: 253). The formula for current ratio is provided below:

$$\text{Current assets ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} \quad \textbf{(3.4)}$$

Current assets are the portion of total assets that are easily convertible into cash within a financial year. They include short-term securities, accounts receivable and inventory (Pandey, 2010:480). Conversely, current liabilities are that portion of funds from external stakeholders that are due for payment within a financial year. These comprise trade creditors, accounts payable and outstanding expenditures (Pandey, 2010:480).

The acceptable current ratio should generally be higher than one. A current ratio less than one indicates critical liquidity problems for the company since it shows that the total proportion of current liabilities is higher than the total proportion of current assets; in other words, the company is not in the position to pay its short-term obligations fully (Agha & Mphil, 2014:376). The current ratio determines whether a company can pay off all its short-term debt with the capital it receives from selling assets (Vuorikari, 2012:13). Therefore, the greater the current ratio, the more liquid a company is considered to be (Gitman *et al.,* 2010:50).

Experts define acid-test ratios differently. Gitman *et al.* (2010:51) observe that the "acid-test ratio (ATR) is a measure of liquidity and is calculated by dividing current assets minus current liabilities". Brigham and Dave's (2007:253) argue that the ATR is calculated by deducting inventory from current assets and then dividing the result by current liabilities. The suggested ATR must be 1 or higher than 1. This ratio provides a better measure of general liquidity only when the company's inventory cannot be easily converted into cash. If inventory is liquid, the current ratio is an ideal measure of overall liquidity (Boone & Kurtz, 2010:64; Gitman *et al*, 2010:51; Hatten, 2008: 123).

Studies that have used the acid test or quick ratio include Chatterjee (2012:42) and Ahmadpour *et al.* (2012:284). Chatterjee (2012:43) conducted a study on the impact of working capital on profitability. His study included a sample of 100 companies listed on the Indian Stock Exchange (ISE) during the period 2010 to 2011. It investigated the effect of different components of working capital, such as receivable days, inventory turnover days, payable days, CAR and quick ratio (QR) on the net operating profitability. The results indicated a negative relationship between these working capital components and profitability. In this study, debt ratio (DR) and fixed assets (FATA) were the control variables. Findings revealed a negative relationship between current ratio (CR), DR, and profitability (Chatterjee, 2012:43).

In contrast, Ahmadapour *et al.* (2012:284) conducted a study on the association between working capital management and performance, using a sample of 112 Iranian listed companies during the period 2000 to 2009. Their results revealed a positive correlation between CAR, DR and natural logarithm of sales (LOS), and a significant but negative relationship with FATA and performance.

A few empirical studies have investigated the relationship between liquidity and financial performance. These include Niresh (2012 a), Olagunju, Adeyanju and Olabode (2011) and Rehman, Khan and Khokhar (2015). Olagunju *et al.* (2011:5) conducted a study on liquidity management and commercial banks' profitability in Nigeria. Their study found a significantly positive relationship between liquidity management and profitability. Niresh (2012: 39 a) investigated the trade-off between liquidity and profitability using 31 listed manufacturing companies in Sri Lanka over a period of five years (2007–2011).

Niresh (2012 a) used ROC, net profit (NP) and ROE to measure profitability, while CAR, QR and liquidity ratio (LR) were used to measure liquidity. His study confirmed a negative relationship between the return on capital and liquidity variables such as the CAR, QR and LR. However, the study also found a positive relationship between QR and NP. In addition, a positive relationship was found between CAR and ROE. Finding also revealed a positive relationship between QR and ROE.

In contrast to the studies above, Rehman *et al.* (2015:171) conducted a study on the relationship between liquidity and profitability. They used a larger sample of 99 companies listed on the Saudi Stock Exchange (Tadawul) for a period of five years (2008 to 2012). The ROA and the ROE were used to measure profitability, while the CAR, QR and cash ratio (CHR) were used as proxies for liquidity. Their study found a positive relationship between the ROA and CAR of listed companies in Saudi Arabia. Moreover, there was a

negative but insignificant relationship between ROA and the independent variables quick ratio (QR and CHR. An insignificant relationship obtained between the ROE and CAR, QR and CHR (Rehman *et al.*, 2015:171).

Several studies on the relationship between working capital management and financial performance have been conducted in international and African countries using various measures of working capital. The following section takes an in-depth look at some of these empirical studies.

3.5 The relationship between working capital management and financial performance internationally

Empirical studies that highlight the relationship between working capital and financial performance in countries outside Africa provide the majority of studies on this issue. These include studies by scholars such as Charitou, Elfani and Lois, (2010), Gill, Biger and Murther (2010), Banos-Caballer, Garcia-Teruel and Martinez-Solano (2011), Abuzayed (2012), Vihid, Elham and Mohammadreza (2012), Afrifa, Tauringana and Tingbani (2014) and Konak and Guner (2016).

Charitou *et al.* (2010: 67) conducted a study on the effect of working capital management on profitability using a sample of 43 non-financial companies listed on the Cyprus Stock Exchange over the period 1998 to 2007. A multivariate regression analysis was used to analyse data. CCC components such as days in inventory, day's sales outstanding and creditor's payment period measured working capital, while the ROA was used to measure profitability. Their study found an inverse relationship between the ROA and days in inventory (stock). Moreover, this study found a negative relationship between the ROA and day's sales outstanding and an inverse relationship between ROA and creditor's payment.

Gill *et al.* (2010: 4) conducted a study on the relationship between working capital management and profitability using a sample of 88 American companies listed on the New York Stock Exchange during the period 2005 to 2007. Their study applied a correlational and non-experimental research design and included similar variables as the study by Charitou *et al.* (2010). GOP was used to measure profitability, while CCC was used as a proxy of working capital management. Their study found a positive and significant relationship between CCC components and profitability: the higher the CCC, the higher the profitability of the company (Gill *et al.*, 2010:7). They concluded that if companies manage their working capital properly, profitability could increase.

After controlling for possible heterogeneity and endogeneity, Banos-Caballer *et al.* (2011: 521) investigated the link between working capital and profitability in small and medium enterprises (SMEs) in Spain. These researchers used panel data from non-financial companies registered during the period 2002–2007. Similar to the study by Gill *et al.* (2010: 4), they used the gross operating income as their measure of profitability and the CCC as their measure of working capital. Their main finding was that working capital and profitability exhibited a concave relationship in which companies maintained an optimal working capital level that balanced the costs and benefits while maximising their profitability. These findings implied that a low investment in working capital was related to higher returns and higher risk.

Abuzayed (2012:171) investigated the working capital management and company performance link using a sample of 93 companies listed on the Amman Stock Exchange for a period of nine years (2000 to 2008). His findings indicated a positive relationship between CCC and profitability, consistent with Mousavi and Jari's (2012: 145) findings.

Afrifa *et al.* (2014:574) conducted a study on the working capital management and company performance relationship using a sample of 1128 listed small medium enterprises (SMEs) in the United Kingdom. As in the study by Banos-Caballer *et al.* (2011: 521), they used a panel data regression analysis for the period (2007–2014). CCC components such as inventory holding period (IHP), accounts receivable period (ARP) and accounts payable period (APP) were used to measure working capital, while Tobin's q ratio (QRATIO) was used to measure performance. They found a concave relationship between QRATIO and IHP, ARP and APP. These findings are consistent with those of the study by Banos-Caballero, Garcia-Teruel and Martinez-Solano (2011:521).

Ul Hassan *et al.* (2014:130) conducted a study on the effect of working capital management on performance of non-financial listed companies in Pakistan during the period 2007 to 2010. The researcher used gross profit margin (GPM), ROA and ROE to measure performance, whereas average age of inventory (AAI), average collection period (ACP) and APP were used to measure working capital. Their findings revealed a positive relationship for AAI with the GPM and return on assets ROA but an insignificant negative relationship between AAI and ROE. In addition, the researchers indicated a significant and positive relationship between ACP with GPM and ROA. Furthermore, the results indicated a positive but significant relationship between APP and GPM but a negative and insignificant relationship between APP and ROA. Lastly, a positive and significant relationship between APP and ROA was found (Ul Hassan *et al.*, 2014:130).

Other researchers have found mixed results on the relationship between working capital components and profitability (Niresh, 2012b: 29; Vihid, Elham & Mohammadreza, 2012:1348; Konak & Guner, 2016: 42). All these studies support the fact that working capital can have an effect on a company's profitability.

From a Turkish perspective, Samiloglu and Akgun (2016:11) examined a study on the relationship between working capital management and profitability of listed manufacturing companies in Turkey. The researchers used a sample of 120 manufacturing companies during a 10-year period (2003–2013). The study used a multiple linear regression methodology and dependent variables such as ROA, ROE, OPM and NPM, while AR, ICP and accounts payable were used to measure working capital. Their findings revealed a significant but positive relationship between ICP and ROE, as well as a significant and positive relationship between accounts payable and ROE. Furthermore, findings showed a significant but negative relationship between AR and ROA, ROE, OPM and NPM (Samiloglu & Akgun, 2016:11). A negative relationship between working capital and profitability implies that a company embraces high levels of working capital.

From the above, one can conclude that most empirical findings from international studies have found mixed contradictory results on the relationship between working capital and financial performance. The most plausible explanation for this may be the differing variables used in these studies, the different methodological approaches used by researchers and the different macro-economic environments in which these studies were conducted. It is therefore necessary to review the literature pertaining to African countries to compare and assess the trends in their working capital and financial performance relationship.

3.6 The relationship between working capital management and financial performance in Africa

Empirical studies of this relationship in African countries such as West and East Africa are common, but not many studies have investigated this relationship in Southern Africa. Some that have included those by Mathuva (2010), Belloume (2011), Mwangi *et al.*, (2014); Nyamweno and Olweny (2014), Ukaegbu (2014), Ul Hassan *et al.* (2014) and Mbithi, Muiruri and Kingi (2015).

Mathuva (2010:8) conducted a study on the influence of working capital management and profitability in a sample of 30 companies listed on the Nairobi Stock Exchange (NSE) for the period 1993 to 2008. The researcher used pooled ordinary least square (OLS) and a fixed effects regression model. He found a highly significant and negative association between average collection period (ACP) and profitability. This implies that profitable companies take less time to collect cash from their clients. In addition, the study found a highly significant and positive association between inventory collection period (ICP) and profitability. This implies that companies that keep more adequate inventory levels minimise the cost of interruptions in the production process and loss of business as a result to less goods (Mathuva, 2010:8). Furthermore, the study found a highly significant and a positive association between APP and profitability. This means that the longer a company takes to pay its bills, the more profitable it becomes (Mathuva, 2010:9).

In order to test the relationship between working capital management and financial performance, Belloume (2011:87) used a sample of 386 small and medium export companies in Tunisia during the period 2001 to 2008. The researcher used panel data. The study included the dependent variable GOP to measure profitability and independent variables INV, days of sales outstanding (DSO), CCC and DP to measure working capital. The findings revealed a negative relationship between days of INV, DSO, CCC and DP and GOP components. The researcher concluded that a longer CCC would hinder profitability as the low level of liquidity influence the companies risk (Belloume, 2011:87).

In a similar study, Ogundipe, Ibiola and Ogundipe (2012:1197) used a sample of 54 non-financial listed companies in Nigeria during the period 1995 to 2009. The researchers used market value (MV), ROA and ROE to measure financial performance while CCC, CR, current asset to total asset ratio (CAR), current liabilities to total asset ratio (CLR) and debt to asset ratio (DAR) were used to measure working capital. Their results were

similar to those of Bellouma (2011:87), who found a negative relationship between GOP and working capital components.

Ogundipe *et al.* (2012:1197) also obtained a significant but negative relationship between CCC and financial performance. This implies that an increase in average age of inventory and average collection period receivable and a decline in average payment period will result in a longer CCC, which will have a negative effect on profitability. The negative relationship between working capital management and company performance suggests that managers can create value for their shareholders by shortening the CCC.

In Kenya, the effect of working capital management practices on performance of companies was investigated by Mbithi *et al.* (2015:492), using a sample of 22 hotels. The researchers used questionnaires to collect primary data from the accountants and managers of the hotel. They used net operating profit (NOP) to measure financial performance, while variables such as INV, number of DAR, number of DAP and CCC were used to measure working capital. Their findings revealed a negative relationship between working capital components and NOP. The researchers concluded that converting inventory and receivables into cash, together with paying creditors, needed to be done more quickly for increased profits (Mbithi *et al.*, 2015:492).

Similarly, Ukaegbu (2014:14) conducted a study on the significance of working capital management and profitability in manufacturing companies in developing economies in Africa (Egypt, Kenya, Nigeria and South Africa) during the period 2005 to 2009. His study followed a quantitative approach and panel data methodology, similar to the study by Bellouma (2011:87). The researcher used GOP as the dependent variable to measure profitability while AR, INV, AP and CCC were used as independent variables to measure working capital. The findings revealed an inverse relationship between accounts receivable and profitability. Moreover, a positive relationship was found between

profitability and inventory turnover. Furthermore, the findings indicated a positive relationship between profitability and accounts payable in Egypt but a negative relationship in other countries. Ukaegbu (2014:15) concluded that in order to increase profitability, a company required policies to accelerate accounts receivable collection.

Adagye (2015:103) conducted a study on the effect of working capital management and profitability of companies in Nigeria. He used a smaller sample of 11 listed banks in Nigeria for a one-year period in 2013. The researcher used ROE and ROA to measure profitability, whereas CR, profit before taxation to current liabilities (PCL), operating cash flow to current liabilities (OCL) and cash balance to current liabilities (CTL) were used to measure working capital. This study found a significant and positive relationship between the ROE and ROA and the components of working capital such as CR, PCL, OCL and CTL.

It appeared from this review of empirical studies conducted in African countries that many researchers have found mixed results (that is, positive and negative relationships) with regard to the relationship between working capital and profitability, especially in West and East Africa. Findings also suggested that companies need to manage working capital efficiently in order to enhance their financial performance and increase shareholders' wealth.

3.7 The relationship between working capital management and financial performance in South Africa

While the relationship between working capital management and financial performance in West and East Africa has been thoroughly researched, there is limited research from Southern Africa. For instance, the researcher was able to identify only a few recent

studies conducted in South Africa. These include works by Erasmus (2010); Ncube (2011) and Louw (2014).

Erasmus (2010: 9) examined the relationship between working capital management and company profitability in a sample of listed and delisted South African industrial companies during the period 1989 to 2007. The researcher used panel data consisting of 319 companies (159 listed and 160 delisted) to obtain 3924 observations (2275 listed companies and 1649 delisted companies). The study included a dependent variable, ROA to measure profitability, and two independent variables, NTC and CCC as measures of working capital. His study revealed a statistically significant negative relationship between profitability and both NTC and CCC.

The study also found negative but statistically significant results between the CR and the DR. Erasmus (2010) is of the view that similar results would be obtained if listed companies during the period under review were conducted separately. Moreover, in the case of companies that were delisted during the period under review; the liquidity and DR seemed to play essential more vital role net trade cycle NTC. Furthermore, the researcher noticed that, based on the results obtained, it would seem that a decrease in NTC could lead to an improvement in a company's profitability (Erasmus, 2010: 9).

Ncube (2011) used a sample of 254 South African companies listed on the Johannesburg Stock Exchange (JSE) for the period 2004 to 2010. The study used the cash conversion cycle (CCC) to measure working capital management and operating profit margin (OPM) to measure profitability. Ncube (2011) found a significant but negative relationship between the net time interval between the actual cash expenditures on a company's purchase of productive resources and the final recovery of cash receipts from product sales and profitability. In addition, there was a negative relationship between the CCC and profitability. This negative association suggests that managers can create value for

their shareholders by shortening the CCC. The study also found a negative relationship between profitability and debt to equity ratio. This implies that a company's profitability will be more likely to decrease at excessively high and increases levels of debt.

Louw (2014) conducted a study on the working capital-profitability nexus in listed retail companies in South Africa. In this study, the researcher used 18 JSE listed retail companies during the period 2002 to 2012. The study used a panel data methodology similar to that used by Erasmus (2010:9) and proxies such as the ROA, ROE, GPM and Economic Value Added (EVA) to measure profitability, while the CCC was used as independent variable and a measure of working capital.

Findings revealed a negative relationship for EVA and ROE with the CCC but a positive relationship between CCC and GPM. It can thus be concluded that a decrease in the CCC positively affects retail companies' operating measure for return (the GPM) but does not affect their ultimate returns as measured using the ROE, ROA and the EVA. The researcher observed that retail companies managed their CCC by keeping their inventory levels to a minimum in order to boost profitability (Louw, 2014:130).

In summary, South African studies have found contradictory results, that is, positive and negative relationships, between working capital management and profitability. A positive relationship between working capital management and profitability implies that companies embrace low levels of working capital, while a negative relationship indicates high levels of working capital.

3.8 Conclusion

The theories of financial performance such as the Clark theory of profitability and the trade-off between profitability and risk were examined in this chapter. The concept of financial performance and its measurement return on assets (ROA) was also discussed. In addition, the relationship between liquidity management measured as current assets and financial performance was discussed. Furthermore, this chapter reviewed previous empirical studies on the relationship between working capital management and financial performance internationally, in African countries and in South Africa.

The methodological approach used in this study is discussed in the following chapter.

Chapter Four: Research Methodology

4.1 Introduction

Following on the literature review of the study, the purpose of this chapter is to describe the research methodology used to determine the relationship between working capital management and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016. This chapter explains the research approach and design, the population and sample, data collection and analysis, and the panel data model.

4.2 Research approach

There are two research methods to choose between when doing research: quantitative and qualitative methods. In this study, a quantitative research method was employed. Qualitative analysis is used when new theories are to be generated; that is when an inductive research approach is used. A quantitative study, on the other hand, is usually more about testing a theory than developing a new one, and uses a deductive approach (Bryman & Bell, 2011:27).

Saunders, Lewis and Thornhill (2009:414) mention statistics, graphs and charts as examples of techniques that can help the researcher turn quantitative data into something meaningful. In addition, a quantitative study is defined as a logical way of gathering primary data from a large population, collecting some information from these data and generalise this to a broader population (Tustin, Ligthelm, Martin & Van Wyk, 2005:89). A quantitative approach was taken in this study because it focuses on numerical data and an interpretation of results in an attempt to glean as much information as possible from the observed numerical values, as suggested by Dimitrov (2008:9).

4.3 Research design

A research design is a plan showing how interpretations will be made and how the researcher will proceed (Monette, Sullivan & De Jong, 2008:9). It is a plan and structure of investigation so conceived as to obtain answers to research questions. The plan is the overall scheme or programme of the study. It includes a framework of what the researcher will do: from writing hypotheses and their operations to the final analysis of the data (Cooper & Schindler, 2014:125).

There are many different types of research design. In quantitative methods, these are developmental designs, observational studies, survey designs and correlation designs. All these research designs generate quantitative information that can be analysed using statistical methods (Leedy & Ormrod, 2005:162).

For the purpose of this study, a correlation research design was used because this design has to do with studying a problem in order to throw light on the association between explanatory variables. Salkind (2014:275) defines correlation research as the “linear relationship between two variables without any hint of attributing the effect of one variable on another”. The results of correlation research have an influence on decision-making in organisations; however, one drawback to correlation research is the clarification of a causal relationship.

A correlation research design and regression analysis were used in this study, since its primary objective was to investigate the relationship between working capital management and financial performance of listed food and beverage companies in South Africa for the period 2007 to 2016. The approach was similar to a study by Kungu (2015: 43), who used a correlation research design to determine the effect of working capital management on the profitability of manufacturing firms in Kenya. Mousavi and Jari (2012:

143) on the other hand used a correlation research design to determine the relationship between working capital management and firm performance in Iran.

The Pearson's Product Moment correlation coefficient was used in this study to investigate the relationship between working capital management and financial performance of food and beverage companies in South Africa for the period from 2007 to 2016. Makori and Jagongo (2013:10) used Pearson's correlations to establish the relationship between working capital management and a firm's profitability. The results of their study indicated a negative relationship between return on assets and the companies average collection period, but a positive relationship between return on assets and number of days of inventory and number of days payable.

Welman and Kruger (2009:145) highlighted the advantages of using a correlation research design as follows: firstly, correlation research can collect data from many subjects at one time. Secondly, a correlation research design can study a wide range of variables and their interrelations. Lastly, a correlation design studies variables that are not easily simulated in the laboratory. The main goal of a correlation research design is the discovery of associations among different variables (Cooper & Schindler, 2011: 342).

4.4 Population

A population is all the elements, individuals and objects that meet the criteria for inclusion in a study (Burns & Grove, 2005:40). This study was conducted among JSE-listed food and beverage companies operating in South Africa. The population statistics for the study were extracted from financial statements of a total of 18 food and beverage companies listed on the Johannesburg Stock Exchange (JSE) for a period of 10 years, from 2007 to 2016.

4.5 Sample size and sampling techniques

A non-probability purposive sampling technique was used in this study. With “purposive sampling, you need to use your judgement to select cases that will best answer research questions and to meet your objectives” (Saunders *et al.*, 2012:287). Consequently, it is sometimes referred to as judgemental sampling. Purposive sampling was used because food and beverage companies that deal with dissimilar products and services and have different characteristics across the board were selected for this study.

The sample consisted of 12 food and beverage companies listed on the Johannesburg Stock Exchange (JSE) during the period 2007–2016 drawn from a population of 18 listed food and beverage companies. These companies were grouped into subsectors, such as distillers and vintners (two companies), farming, fishing and plantation (five companies) and food products (five companies). The remaining six companies could not be included in this study because of missing data in most of the selected variables for the period under review. The final list of companies is reflected in table 4.1. These companies were deemed adequately representative of the population of listed food and beverage companies in South Africa in the period from 2007 to 2016. Although the sample of 12 food and beverage companies has been identified for this study, it is acknowledged that there are disparities in the operations of the sampled companies. For the purposes of this study however, these differences have been ignored and it is thus assumed that all companies are at the same level chain.

Table 4.1: Companies per subsector

Industry subsector	**Companies names**
Distillers and vintners (Beverages**)**	Capevin Holdings Distell Group
Farming, fishing and plantation (Food producers)	Astral foods Crookes Brothers Oceana Group RCL Foods Sovereign Food Investments
Food products (Food producers)	AVI Clover Industries Pioneer Food Group Holdings Tiger Brands Limited Tongaat Hulett

Source: Compiled by researcher

4.6 Data collection

Gillis and Jackson (2002:450) define data collection as "the process of gathering information from identified respondents to answer the research questions, using different data collection instruments such as questionnaires, interviews and checklists". Secondary data were used in this study because of the reliability and accuracy of the audited financial statements of listed food and beverage companies in South Africa. Tustin *et al*. (2010:88) argue that secondary data is information that already exists as it has been used for a study other than the existing one and was collected for observation at an earlier date.

The annual financial statements of 12 food and beverage companies listed on the Johannesburg Stock Exchange (JSE) was collected from the *iress* McGregor database in order to calculate financial ratios. Financial data on these companies was also collected from the Johannesburg Stock Exchange (JSE). The data used to calculate the

profitability, the current assets ratio CAR, CCC components and ROA, ROE and GOP were obtained from the audited financial statements of listed food and beverage companies for a period of 10 years from 2007 to 2016. In order to introduce the influence of the economic cycle on the levels invested in short-term assets and short-term liabilities, data on the gross domestic product (GDP) was retrieved from the South African Reserve Bank (SARB) website.

4.7 Data analysis

Pilot and Beck (2006:24) argue that research should give an account of the method that will be used for analysing the data to provide answers to research questions. In this study, data analysis included the statistical methods of correlation analysis and regression analysis using Stata software to investigate the relationship between working capital management and financial performance.

The variables identified to measure financial performance in this study were ROA, ROE and GOP. Components of the CCC such as the ICP, ACP and APP measured working capital management efficiencies. Some studies that have used components of the CCC to measure working capital include Makori and Jagongo (2013:10), Alala, (2014: 217), Vahid, Elham and Ebrati (2012:1317) and Waithaka (2012:36).

The data were analysed using descriptive statistics and inferential statistics. Descriptive statistics reshape raw data into a form to offer information that describes a set of aspects in a situation. This step provides the distribution of scores and measures of central tendency such as mean, median and the mode (Salkind, 2014:230). Whereas “descriptive statistics are used to describe a sample’s characteristics, inferential statistics are used to infer something about the population from which the sample was drawn based on the characteristics (often expressed using descriptive statistics) of the sample” (Salkind, 2014:247).

4.8 Panel data model

A panel data model was used to test the relationship between CCC components and profitability. This methodology was adopted following the empirical frameworks used by Deloof (2003:576), Abuzayed (2012:171), and Afrifa and Padachi (2016:50), who investigated the relationship between working capital management and profitability using data drawn from different markets and economies. These studies used one measure of profitability. However, the present study used three measures of profitability that is, ROA, ROE and GOP. The major advantage of this study was that it was possible to compare the measurements of profitability across three groups of profitability. Advantages of using a panel data regression model are that it enhances the degrees of freedom, delivers estimates that are more precise and minimises the problem of co-linearity among independent variables (Haron & Nomran, 2016:466).

This section presents the main estimation using the Generalised Method of Moments (GMM) model in order to address the research objectives. There were three dependent variables: ROA, ROE and GOP. The generic GMM model had the following form:

$$\boldsymbol{y_{it}} = \boldsymbol{\alpha y_{i\,t-1}} + \boldsymbol{\beta x_{it}} + \mu_i + \boldsymbol{\varepsilon_{it}} \qquad \textbf{(4.1)}$$

Where:

y_{it} represents profitability measures for food and beverage companies *i* in time *t*;

x_{it} is the vector of independent variable for food and beverage companies *i* for time *t,* representing the food and beverage-specific variable;

α_0 denotes a constant term.

μ_i denotes fixed effects in food and beverage companies

ε_{it} is a random error term; and

The subscript *i* denotes the cross-section and *t* represents the time-series dimension.

Since this study used a panel data regression model, the researcher needed to decide whether to use a fixed effects model (FEM) or a random effects model (REM). Hausman's (1978) estimation test is used when choosing a suitable approach, either FEM or REM for panel data. Brooks (2008:490) argues that the FEM allows the intercept in a regression model to vary cross-sectionally but not over time, although all the slope estimates are fixed both cross-sectionally and over time. Gujarati (2011:303) adds that the FEM is suitable in situations where the individual-specific intercept may be correlated with one or more regressors. However, Gujarati and Porter (2009:606) argue that the REM is based on the belief that there is a correlation between the regressors and the individual or cross-section specific intercept.

Model specification

$$\mathrm{ROA}_{\mathrm{it}} = \beta_0 + \beta_1 \mathrm{ICP}_{\mathrm{it}} + \beta_2 \mathrm{ACP}_{\mathrm{it}} + \beta_3 \mathrm{APP}_{\mathrm{it}} + \beta_4 \mathrm{Size}_{\mathrm{it}} + \beta_5 \mathrm{CAR}_{\mathrm{it}} + \beta_6 \mathrm{GDP}_{\mathrm{it}} + \varepsilon_{\mathrm{it}} \quad \textbf{(4.2)}$$

$$\mathrm{ROE}_{\mathrm{it}} = \beta_0 + \beta_1 \mathrm{ICP}_{\mathrm{it}} + \beta_2 \mathrm{ACP}_{\mathrm{it}} + \beta_3 \mathrm{APP}_{\mathrm{it}} + \beta_4 \mathrm{Size}_{\mathrm{it}} + \beta_5 \mathrm{CAR}_{\mathrm{it}} + \beta_6 \mathrm{GDP}_{\mathrm{it}} + \varepsilon_{\mathrm{it}} \quad \textbf{(4.3)}$$

$$\mathrm{GOP}_{\mathrm{it}} = \beta_0 + \beta_1 \mathrm{ICP}_{\mathrm{it}} + \beta_2 \mathrm{ACP}_{\mathrm{it}} + \beta_3 \mathrm{APP}_{\mathrm{it}} + \beta_4 \mathrm{Size}_{\mathrm{it}} + \beta_5 \mathrm{CAR}_{\mathrm{it}} + \beta_6 \mathrm{GDP}_{\mathrm{it}} + \varepsilon_{\mathrm{it}} \quad \textbf{(4.4)}$$

Where:

ROA_{it} = Return on assets measured by EBIT÷ Total Assets

ROE_{it} = Return on equity measured by profit after tax ÷ Total equity

GOP_{it} = (Sales-Cost of goods sold) ÷ (Total assets-Financial assets)

β_0 = Beta coefficient

ICP_{it} = Inventory conversion period measured by [Inventory ÷ (cost of sales)] × 365

ACP_{it} = Average collection period measured by [Accounts receivable ÷ (Total Sales)] ×365

APP_{it} = Average payment period measured by [accounts payable ÷ (cost of sales) ×365]

CAR_{it} = Current assets ratio measured by current assets ÷ current liabilities

$SIZE_{it}$ = measured by natural logarithm of Total assets

GDP_{it} = Gross domestic product of country i for time period t

ε_{it} = Error term

4.9 Variables for this study

In accordance with the research objectives, the dependent and independent variables (explanatory variables) used in this study and their measurement were adopted from existing literature in order to produce or construct a worthwhile comparison with previous empirical studies.

The explanatory variables included ACP, ICP and APP. Apart from dependent and independent variables, it was important to take some of the control variables into consideration (Le Quan, 2013:26). In addition, some variables such as CAR, company size and GDP and the error (ε) term were added in the regression model in order to control the firm-specific factors that may have had an impact on performance.

4.9.1 Dependent variables

4.9.1.1 Return on assets (ROA)

ROA was used as one of the profitability and financial performance measures in this study. Agha and Mphil (2014:378) also used ROA to measure profitability in their study. They found a positive relationship between debtors' turnover (DTO) and ROA, inventory turnover and ROA, and creditors' turnover (CTO) and ROA. Makori and Jagongo (2013: 12) used ROA to measure profitability in their study. According to Makoni and Jagongo (2013), ROA was positively related to ICP and average collection period. Other researchers who have used ROA to measure performance include Adebowale *et al.* (2015:69), Gambo and Abdulkarim (2016:20), Nyabuti and Alala (2014:217) and Pun Thapa (2013:87). They all found a positive relationship between working capital and financial performance measured using ROA.

In contrast with the above studies, Lyngstadaas and Berg (2016:9) conducted a similar study on the relationship between working capital management and profitability of small and medium companies in Norway. Their study revealed a negative relationship between CCC elements (number of days of INV, number of days ACR and number of days APP) and profitability. Other studies which had similar findings include Garcia-Teruel and Martinez-Solano (2007) and Pais and Gama (2015). Based on these findings, companies that place emphasis on decreasing the CCC tend to be more profitable.

4.9.1.2 Return on equity (ROE)

ROE was used to measure profitability. This was calculated by dividing profit after tax by total equity, similar to the study by Ailemen and Folashade (2014:4). They found a positive relationship between the CAR and profitability measured using ROE, but a negative relationship between trade receivable collection period in days and ROE. Furthermore, the result of their study indicated a significant but negative relationship between trade payable payment period in days and ROE. This suggests that as the payment period

increases, the profitability of the company declines and *vice versa* (Ailemen & Folashade, 2014:6). Other studies that found a negative relationship between working capital components and profitability measured using ROE are Ahmadpour *et al.* (2012:285) and Louw (2014:115).

In contrast to these findings. In the study conducted by Adagye (2015:103) on the effect of working capital management and profitability of companies in Nigeria, the researcher found a significant and positive relationship between ROE and the components of working capital management such as CAR, PCL, OCL and CTL. Other studies found a positive relationship between ROE and working capital components (Ul Hassan *et al.*, 2014:130; Konak & Guner, 2016:42).

4.9.1.3 Gross operating profit (GOP)

GOP was used as a dependent variable to measure profitability. It was calculated by deducting the cost of goods sold from total sales and dividing this by total assets minus financial assets. Similarly, Napompech (2012:228) used GOP as a measure of profitability rather than profit before or after tax. GOP was deemed appropriate as it relates more closely to the CCC and its elements.

Almazari (2014:155) investigated the relationship between working capital and profitability using evidence from Saudi cement companies. He found a significant but negative relationship between GOP and CCC components (inventory conversion period, receivable collection period and payables deferral period). Other studies that had similar findings include Lazaridis and Tryfonis (2006:11) and Bellouma (2011:87). This implies that by shortening the CCC, a company's profitability will increase.

Gill *et al.* (2010) conducted a study on the relationship between working capital management and profitability using a sample of 88 American companies listed on the New York Stock Exchange during the period 2005 to 2007. They found a positive and significant relationship between CCC components and GOP. However, the higher the CCC, the higher the profitability of the company would be (Gill *et al.*, 2010:7). Abuzayed (2012:167) and Ukaegbu, (2014:15) had similar results. This positive relationship is inconsistent with the view that the shorter the period between production and sale of products, the greater the company's profitability (Abuzayed, 2012:167).

4.9.2 Independent variables

4.9.2.1 Inventory conversion period (ICP)

ICP was used as an independent variable measured by inventory divided by cost of sales multiplied by 365 days. Charituo *et al.* (2012:845) used ICP in their research as a measure of working capital management. They found a positive relationship between the CCC (measured in ICP, ACP and APP) and profitability (measured in ROA). Other studies have also confirmed a positive relationship between the ICP and profitability (Gill *et al.*, 2010; Makori & Jagongo, 2013).

However, Mathuva (2010: 283) found a negative relationship between working capital components (ACP, stock turnover in days and APP). Other studies that used ICP as a measure of CCC (Deloof, 2003; Bhatia & Srivatava, 2016; Almazari, 2014) also found a negative relationship between ICP and profitability.

4.9.2.2 Average collection period (ACP)

ACP was used as a measure of working capital management. This is calculated by dividing accounts receivable and net sales multiplied by 365 days. Makori and Jagongo (2013: 10) used ACP in their study to measure working capital management. Their results revealed a negative relationship between ROA and ACP, consistent with the

argument that the shorter the time taken by consumers to pay their bills, the more cash is available to replenish the inventory therefore leading to more sales, which results in an escalation in profitability.

Omesa *et al.* (2013:176) also used ACP to measure working capital management. The results of their study indicated that working capital measures such as the CCC, ACP, and control variables such as the CLTA, net working capital turnover ratio (NSCA) and FATA were significant at 95% (p-values are <0.05) to performance measured by ROE. Furthermore, the study also found a negative relationship between ACP and ROA. Other researchers who found a negative relationship between ACP and profitability include Gakure *et al.* (2012:684) and Vahid *et al.* (2012:1317).

4.9.2.3 Average payment period (APP)

APP was used as a measure of working capital management, calculated by dividing accounts payable and cost of sales multiplied by 365 days. Mangesha (2014:66) used APP to measure working capital management, and found a highly significant but negative association between APP and ROA. Ahmadpour *et al.* (2012: 284) also used APP to measure working capital management. Their study found a significant but negative relationship between APP and ROA.

Vahid *et al.* (2012:1317) found a negative relationship between operating profitability and APP. These researchers believe that a negative relationship between APP and NTC indicates that less profitable companies wait longer to pay their accounts payable. Other researchers using APP to measure working capital management (Yogendrarajah & Thanabalasingam, 2009:6; Waithaka, 2012:36) found a positive relationship between APP and ROA.

4.9.3 Control variables

4.9.3.1 Current assets ratio (CAR)

In this study, CAR was used as the measure of liquidity of listed food and beverage companies and was calculated by dividing current assets and current liabilities. The shorter the CCC, the sooner the company can retrieve its cash from the sales of its goods and services, the more cash it will have, the more liquid it will be and vice versa (Bolek, 2013: 1-24). Al Dalayeen (2017: 53) used CAR as a control variable, and found a positive relationship between CAR and profitability. Makori and Jagongo (2013), Hayajneh and Yassine (2011) and Lyngstadaas and Berg (2016) found similar results on this relationship. This means that if CAR increases, the profitability of a company will also increase (Deloof, 2003:581).

4.9.3.2 Size (TA)

In this study, the natural logarithm of total assets was used as a measurement of company size. Charitou *et al.* (2012: 884) did the same in their study. They found a positive relationship between ROA, CCC and TA. This positive relationship of size of the company and profitability measured on ROA was also found by Garcia-Teruel and Martinez-Solano (2007), Banos-Caballero *et al*. (2012), and Pias and Gama (2015) and Samiloglu and Akgun (2016: 12). This indicates that enhancing the size of a company is related to an increase in profitability (Kaddumi & Ramadan, 2012: 220).

However, Abbadi and Abbadi (2013:72) used company size as a control variable in their study and found a negative but significant relationship between company size and profitability. Bigger companies may require more investment in short-term assets, because of their larger volume of sales (Abbadi & Abbadi, 2013:72).

4.9.3.3 Gross Domestic Product (GDP)

The GDP was used in this study as economic factors have an effect on the short-term assets and profitability of companies. In addition, economic growth is undoubtedly one of the most consistent economic indicators, as it is the greatest measure of changes in economic environmental activities. For instance, during tough economic conditions, companies may have difficulties in securing external financing for their daily operating activities and may also increase their inventories (Lyngstadaas & Berg, 2016:299), sometimes because they are unable to sell their products. Garcia-Teruel and Martinez-Solano (2007) believe that favourable economic conditions are reflected in a company's profitability, and GDP controls the development of the economic cycle.

Pais and Gama (2015) and Lyngstadaas and Berg, (2016:311) used GDP growth as a control variable in their studies. They found a positive relationship between GDP growth and profitability. However, Ademola (2014:20) also used GDP growth as a control variable but found a negative relationship between GDP growth and profitability measured in net operating profit. This implies that when GDP increases, the profitability of companies decreases (Ademola, 2014:18).

A summary of the variables used in this study are provided in the table below.

Table 4.2: Variables and their measurements

Types of variable	Name of variable	Abbreviation	Measurement
Dependent	Return on assets	ROA	EBIT ÷ Total Assets
Dependent	Return on equity	ROE	Profit after tax ÷ Total equity
Dependent	Gross operating profit	GOP	Sales-Cost of goods sold ÷ Total assets-Financial assets
Independent	Average collection period	ACP	Account receivable ÷ Net Sales*365
Independent	Inventory conversion period	ICP	Inventory ÷ cost of sales*365
Independent	Average payment period	APP	Account payable ÷ cost of sales*365
Control	Current assets ratio	CAR	Current assets÷ current liabilities
Control	Size	Size	Natural logarithm of Total assets
Control	Gross domestic Product	GDP	GDP = $[(GDP_n – GDP_{n-1})$

Source: Compiled by researcher

4.10 Reliability and validity

4.10.1 Reliability

Reliability estimates assess the consistency of measures, the internal quality of tools and inter-rater reliability (Oluach, 2014: 25). Lawrence (2006:189) argues that, if the statistical results produced by an indicator do not diverge because of the appearances of the measurement process, the measuring instruments are reliable. If it happens that the measuring instruments lead to irregular or inconsistent results, they are viewed as unreliable. However, Ismaila (2011:58) notes that reliability requires that the researcher uses the same strategy When replicating the same case process.

The researcher assumes that reliability is about integrity, exactness and uniformity of the data gathered and the results presented. Reliability has to do with whether the signal and conclusions stand up to the analysis. The exactness of the measurement rests on the reliability of the measurement. For instance, this study collected data from the *iress* McGregor database. In order to ensure the reliability of this study, the data collected from *iress* McGregor database were kept in case any replication of this study was required.

4.10.2 Validity

Validity refers to the extent to which a test measures what we actually wish to measure (Cooper & Schindler, 2008:231). That is, validity is defined “in terms of whether the measuring instrument measures what it supposed to measure” (Pilot & Beck, 2006:382). In order to ensure the validity of the study, it was conducted using respondents from all food and beverage companies listed on the Johannesburg Stock Exchange (JSE). Since the positivistic paradigm places emphasis on the meticulous nature of the measurement and the ability to repeat the test consistently, there is always a risk that the validity would be actual less as results. For instance, the greater the reliability the lower validity can be.

4.11 Ethical considerations of the study

This study dealt with respondents from food and beverage companies listed on the Johannesburg Stock Exchange (JSE). The researcher made sure that the process of protecting these individuals' rights, the confidentiality of their data and their rules was a thorough one. Ethical considerations oblige someone to explain the role of values in the research process and the role of professional associations (Bryman, 2008:113). Ethical clearance for secondary data was obtained from the University of South Africa. The ethical clearance certificate reference number 2016/CEMS/DFRB was assigned to the study. In addition, the work in progress and final dissertation for submission were submitted to the Turnitin anti-plagiarism software to assess the degree of similarity of this work to the work of other scholars.

4.12 Conclusion

This chapter described the research approach and methods used to investigate the relationship between working capital management and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016. It specified the econometric models used to test the relationship between working capital management and financial performance. In addition, this chapter identified the variables, sample size and techniques used to measure the variables in the study. Lastly, reliability, validity and the ethical considerations of the study were discussed.

The following chapter presents the findings and their interpretation.

Chapter Five: Data analysis and discussion of findings

5.1 Introduction

In the previous chapter, the methodology and data analysis techniques employed in this study were discussed. This chapter presents the findings of the analyses discussed in Chapter 4.

This chapter is structured as follows: Section 5.2 presents a discussion of the descriptive statistics of the variables that were used in this study. The correlation coefficient is discussed in Section 5.3, while Section 5.4 provides the regression model specifications and results from the sample of food and beverage companies in South Africa. Sections 5.5 and 5.6 report on the generalised method of moments (GMM) model used to regress working capital components against the return on assets (ROA), return on equity (ROE) and the gross operating profit (GOP), respectively. Section 5.7 concludes the chapter.

The specific research objectives of this study were:

- To investigate the relationship between the Inventory Conversion Period (ICP) and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016.
- To assess the relationship between the Average Collection Period (ACP) and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016.
- To analyse the relationship between the Average Payments Period (APP) and the financial performance of listed food and beverage companies in South Africa during the period 2007 to 2016.

5.2 Descriptive statistics

The summary of the descriptive statistics of all the variables relating to the sample of listed food and beverage companies under consideration are presented in this section. The descriptive statistics of the variables are presented in Table 5.1, showing the number of observations, mean, standard deviation, as well as minimum values and maximum values of each variable.

Table 5.1: Summary of descriptive statistics

```
. summarize

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
        year |        120      2011.5    2.884324      2007       2016
        name |        120         6.5    3.466527         1         12
         car |        120    1.890464    1.014991   .2752075   7.012863
         roa |        120    .1483754    .0912689  -.0697364   .5009896
         roe |        120    .1557919    .2301118  -1.533606   .5521756
-------------+---------------------------------------------------------
         acp |        120    82.24973    62.71593   32.38038   348.2824
         app |        120    66.76958    53.89306   -318.259   293.8481
         icp |        120    76.62488    75.57057   8.264296   377.6299
         gop |        120    -.054489    2.232521  -24.22291   .5519764
         gdp |        120     2807246    617954.3    1857779    3795141
-------------+---------------------------------------------------------
          ta |        120     7234298     6278701     355510   3.02e+07
```

The total observation for each variable was 120. The descriptive statistics were drawn from the calculated standard of working capital management measures such as ICP, ACP and APP, as well as the control variables such as the size of the companies measured TA, CAR and GDP.

The descriptive statistics indicate that on average, South African listed food and beverage companies keep current assets at 1.89 times current liabilities. The current assets ratio

for the companies ranged from a minimum value of 0.28 to a maximum of 7.0. These values are regarded as good performance indicators since the companies surveyed are in the fast moving consumer goods sector of the economy.

For the various measures of profitability, ROA had a minimum value of -0.70 and a maximum value of 0.50. The reason for this huge gap might be the different assets used by these companies and differing returns amongst these companies. The mean value of ROA was 0.15, with a standard deviation of 0.09. The mean ROE was 0.16 percent, although some of the food and beverage companies recorded as an ROE as high as 0.55 percent, others were as low as -1.53 percent. The ROE depends on the equity of a company and net income, which differ from company to company. The GOP ranged from a minimum value of -24.22 percent to a maximum value of 0.55 percent. The mean value of GOP was -0.05 percent with a standard deviation (SD) of 2.23 percent.

From these preliminary findings, it appeared that ROA was better than ROE and GOP as measures of profitability as it confirmed that firms were using their non-current assets productively and efficiently to generate revenue.

The ACP as a measure of working capital management was an average of 82.25 days for the sampled companies. This means that during the account receivables period, companies in the sample waited 82.25 days on average to collect cash from credit sales. The ACP deviated by 62.72 days on both sides of the mean value and ranged from 32.38 days to 348.28 days. The upper level was considered to be significantly high for food beverage companies, which are generally fast moving consumer goods companies. Affording debtors too much time to settle their accounts could leave companies in the study facing insolvency as they would not be able to replenish their inventory as their cash being would be tied up in outstanding debts. In addition, debts that take longer to

settle have the potential to become bad debts, again affecting the entire cash conversion cycle.

The mean APP as a measure of working capital management was 66.77 days, with a standard deviation of 53.89 days. Overstretching the average payment period could result in reputational risk and strained relationships with suppliers, as long overdue payments may affect their own cash flows. The mean ICP was 76.62 days. This implies that, companies in the sample on average required 76.62 days to sell their inventory or stock. Table 5.1 above indicated that the standard deviation of inventory conversion period (ICP) was 75.57 days, while the period typically ranged between 8.26 days and 377.63 days. The average size of food and beverage companies listed on the Johannesburg Stock Exchange in South Africa as approximated by the natural logarithm of total assets was R7,234,298, with a standard deviation of R6,278,701. The maximum firm's size is R3.02 billion.

The following section discusses the correlation coefficients of working capital management components, namely ICP, ACP and APP.

5.3 Correlation coefficients

The correlation coefficient measures the strength of association between two variables, and typically lies between -1 and +1 (Gitman *et al*., 2010). The larger the absolute value, the stronger the relationship. Cohen (1988) provided some general guidelines on the assessment of the strength of association for particular values. Cohen (1988) argues that an absolute value of between 0.1 and 0.3 indicates weak correlation, 0.3 to 0.5 is a moderate correlation while absolute values above 0.5 imply strong correlation.

Table 5.2 below presents the correlation coefficients of the working capital management and profitability variables at the 1%, 5% and 10% levels of significance, respectively.

Table 5.2: Correlation coefficients of variables

```
. pwcorr roe roa gop icp acp app ta car gdp, star(0.01)

             |      roe      roa      gop      icp      acp      app       ta
-------------+---------------------------------------------------------------
         roe |   1.0000
         roa |   0.2147   1.0000
         gop |   0.0325   0.2747*  1.0000
         icp |  -0.1691  -0.2877* -0.3007*  1.0000
         acp |  -0.1189  -0.2852* -0.1507   0.2972*  1.0000
         app |  -0.0865   0.0637   0.0929   0.2339   0.0453   1.0000
          ta |   0.0410  -0.1449   0.0720  -0.0796   0.0065  -0.0272   1.0000
         car |  -0.0304   0.0134   0.0403  -0.0564   0.5551* -0.1393   0.0870
         gdp |  -0.1353  -0.2740* -0.0926   0.0312   0.0063   0.0122   0.3967*

             |      car      gdp
-------------+------------------
         car |   1.0000
         gdp |  -0.0476   1.0000

.
. pwcorr roe roa gop icp acp app ta car gdp, star(0.05)

             |      roe      roa      gop      icp      acp      app       ta
-------------+---------------------------------------------------------------
         roe |   1.0000
         roa |   0.2147*  1.0000
         gop |   0.0325   0.2747*  1.0000
         icp |  -0.1691  -0.2877* -0.3007*  1.0000
         acp |  -0.1189  -0.2852* -0.1507   0.2972*  1.0000
         app |  -0.0865   0.0637   0.0929   0.2339*  0.0453   1.0000
          ta |   0.0410  -0.1449   0.0720  -0.0796   0.0065  -0.0272   1.0000
         car |  -0.0304   0.0134   0.0403  -0.0564   0.5551* -0.1393   0.0870
         gdp |  -0.1353  -0.2740* -0.0926   0.0312   0.0063   0.0122   0.3967*

             |      car      gdp
-------------+------------------
         car |   1.0000
         gdp |  -0.0476   1.0000

.
. pwcorr roe roa gop icp acp app ta car gdp, star(0.10)

             |      roe      roa      gop      icp      acp      app       ta
-------------+---------------------------------------------------------------
         roe |   1.0000
         roa |   0.2147*  1.0000
         gop |   0.0325   0.2747*  1.0000
         icp |  -0.1691* -0.2877* -0.3007*  1.0000
         acp |  -0.1189  -0.2852* -0.1507   0.2972*  1.0000
         app |  -0.0865   0.0637   0.0929   0.2339*  0.0453   1.0000
          ta |   0.0410  -0.1449   0.0720  -0.0796   0.0065  -0.0272   1.0000
         car |  -0.0304   0.0134   0.0403  -0.0564   0.5551* -0.1393   0.0870
         gdp |  -0.1353  -0.2740* -0.0926   0.0312   0.0063   0.0122   0.3967*

             |      car      gdp
-------------+------------------
         car |   1.0000
         gdp |  -0.0476   1.0000
```

Table 5.2 above indicates that there were negative but significant relationships between profitability proxies such as the ROA, ROE and GOP, and both the ICP and ACP. The selling off of inventory reduces the stock on hand, while increasing debtors and cash sales, which translates to higher sales revenue and profit. This is in line with the view that turning over inventory rapidly without resulting stock-outs is related to an increase in profitability (Kaddumi & Ramadan, 2012:220). Similar to Afrifa and Padachi, (2012:52), Mun and Jang (2015:6) and Pais and Gama (2015:347), this negative relationship suggests that a reduction of inventory could encourage an increase in profitability. On the other hand, there is the view that a negative association between average age of inventory and profitability shows that the longer inventory is tied up in current assets, the less working capital is available, and this therefore decreases the profitability of a company (Ul Hassan *et al.*, 2014:128).

As far as the relationship between ACP and ROA was concerned, the study found a negative association -0.29 at 1% level of significance. This was in line with the view that the shorter the time taken by consumers to settle their bills, the more cash will be available to replace, stock, resulting in greater sales that leads to an enhancement of profitability (Makori & Jagongo, 2013:10).

The study showed a positive association between ROA and GOP and APP. The positive relationship between ROA and APP supports the view that that payment to suppliers ensures that a company has some cash to buy more stock thus enhancing its levels of sale and increasing its profitability (Makori & Jagongo, 2013:10). An alternative explanation of the positive relationship between ROA and APP could be that profitable companies have on average relatively longer payment periods than less profitable companies because of their credit reputation (Kaddumi & Ramadan, 2012:220). As far as the control variables were concerned, the study found positive relationships between company size and GOP and ACP. This positive association suggested that there was

productive use of companies' non-current assets, which generated revenue and therefore increased profitability. With regard to the CAR, Table 5.2 indicates a positive relationship between profitability measured by ROA and GOP but a negative relationship between ROE and the CAR. A negative relationship between ROA and CAR indicates that excessive levels of working capital result in a decline in the profitability of a company, while lower working capital levels can result in an increase in a company's profitability.

Furthermore, the study found a negative relationship between ROE, GOP and GDP but a significant 1% negative association with ROA and GDP. The negative relationship between these profitability measures and GDP might be a result of the fact that this study focused on a small sector (food and beverage companies) that does not contribute much to the GDP of this country.

In general, the associations between all the variables under study were weak (that is, below the 0.3 cut-off criterion). The only exception to this was the relationship between firm size as measured by TA, and GDP, where the absolute value was positive, moderate and significant at 0.39.

5.4 Regression model specifications and results from a sample of food and beverage companies in South Africa

As was discussed in Chapter Four, the dynamic Generalised Method of Moments (GMM) model had the following general form:

$$\boldsymbol{y_{it}} = \boldsymbol{\alpha y_{i\,t-1}} + \boldsymbol{\beta x_{it}} + \mu_i + \boldsymbol{\varepsilon_{it}} \qquad \textbf{(5.1)}$$

Where, y_{it} represents profitability measures for food and beverage companies *i* in time *t*; y_{it-1} is the lag of the dependent variable into food and beverage companies *i* for time *t-1*. x_{it} is the vector of the independent variable for food and beverage companies *i* for time *t,* representing the food and beverage-specific variable, while α_0 denotes a constant term. μ_i denotes fixed effects in food and beverage companies. ε_{it} is a random error term; the subscript *i* denotes the cross-section while *t represents* the time-series dimension.

The Hausman test was used to select the appropriate approach for the panel data: fixed effects or random effects estimators. Mundlak (1978) argued that the random effects model (REM) assumes exogeneity of all regressors and random individual effects. This study used the dynamic GMM panel estimators to avoid spurious results arising from endogeneity problems, as well as to enhance robustness checks of our results by assuming that the past value of explanatory variables was uncorrelated with the error term (Arellano & Bond, 1991). The dynamic GMM panel data estimation method overcomes some of the shortcomings of cross-sectional estimation biases, such as omitted variables errors, country-specific effects misspecification, endogeneity and the use of lagged dependent variables in the regression, which are generally encountered in panel data regressions (Mun & Jang, 2015:5).

Based on the literature review and the methodology, the researcher estimated the profitability model measured by ROA, ROE and GOP, to determine the relationship between working capital management and the profitability of listed food and beverage companies in South Africa.

5.5 Return on assets (ROA) GMM model

The null hypothesis was rejected and no evidence was found that the fixed effects estimates were invalid, thereby making fixed effects more valid than random effects for

this study. The ROA model was specified using the fixed effects dynamic GMM model as follows:

$$\mathrm{ROA_{it}} = \beta_0 + \beta_1 \mathrm{ICP_{it}} + \beta_2 \mathrm{ACP_{it}} + \beta_3 \mathrm{APP_{it}} + \beta_4 \mathrm{Size_{it}} + \beta_5 \mathrm{CAR_{it}} + \beta_6 \mathrm{GDP_{it}} + \varepsilon_{\mathrm{it}} \quad \textbf{(5.2)}$$

Where, *i* denotes the cross-section and *t* denotes time-series dimension,

β_0 Beta coefficient and the other variables are defined as follows:

ROA_{it} = Return on assets measured by EBIT÷ Total Assets

ICP_{it} = Inventory conversion period measured by [Inventory ÷ (cost of sales)] × 365

ACP_{it} = Average collection period measured by [Accounts receivable ÷ (Total Sales)] ×365

APP_{it} = Average payment period measured by [accounts payable ÷ (cost of sales) ×365]

CAR_{it} = Current assets ratio measured by current assets ÷ current liabilities

$SIZE_{it}$ = measured by natural logarithm of Total assets

GDP_{it} = Gross domestic product

ε_{it} = Error term

The model regression results are provided in Table 5.3 below.

Table 5.3: Dependent variable: Return on assets

	Pooled Effects	Fixed Effects	Random Effects	Differenced GMM	GLS	LSDVC
L. ROA	0.581***	0.148	0.581***	-0.400**	0.575***	0.301**
	(0.120)	(0.135)	(0.140)	(0.0954)	(0.0703)	(0.109)
ICP	-0.0000761	0.000379	-0.0000761	-0.000720	-0.0000200	0.000141
	(0.0000829)	(0.000471)	(0.000104)	(0.000711)	(0.0000664)	(0.000502)
ACP	-0.000321*	-0.000215	-0.000321*	0.000356	-0.000513***	-0.000140
	(0.000132)	(0.000410)	(0.000147)	(0.000298)	(0.000112)	(0.000342)
APP	0.0000699	0.0000512*	0.0000699	0.00000741	0.0000672	0.0000496
	(0.0000789)	(0.0000172)	(0.0000537)	(0.0000671)	(0.0000470)	(0.000126)
TA	-0.0310*	-0.104	-0.0310	0.0613	-0.0459***	-0.0897***
	(0.0150)	(0.0879)	(0.0186)	(0.132)	(0.0125)	(0.0131)
CAR	0.0185**	0.0112	0.0185***	0.00212	0.0164**	0.0124
	(0.00681)	(0.00574)	(0.00532)	(0.0116)	(0.00553)	(0.00789)
GDP	-0.00243	-0.0399	-0.00243	-0.262	0.0433	-0.00988
	(0.0815)	(0.150)	(0.0833)	(0.297)	(0.0378)	(0.0353)
_cons	0.271	1.035	0.271		0.0877	
	(0.463)	(0.704)	(0.489)		(0.237)	
N	108	108	108	96	108	108
R^2	0.602	0.252				

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5.4: Diagnostic statistics: ROA

	Pooled	Fixed effects	Random effects	Diff GMM	GLS	LSDVC
Observations	108	108	108	96	108	108
Groups	12	12	12	12	12	12
F-stats/Wald chi2	25.61	6.63	621.79	31.01	337.43	
Prob>F/Prob>Wald chi2	0.0000	0.0031	0.0000	0.0000	0.0000	
Hausman (Chi2)		24.49	24.49			
Prob>chi2		0.0004	0.0004			
R-SQUARED						
Within		0.2521	0.1594			
Between		0.0517	0.9257			
Overall	0.6017	0.0834	0.6017			
rho		0.7554	0.000			
Arellano-Bond AR(1)				0.21		
Prob>z				0.836		
Arellano-Bond AR(2)				-1.72		
Prob>z				0.085		
Sargan test of overid				7.80		
Prob>chi2				0.168		
Hansen test of overid				3.16		
Prob>chi2				0.675		
Instruments				12		

The R^2 shows that 60% of the variation in ROA was driven by the regressors. The F-stat on the fixed effects model was 6.63, and significant, meaning that the model was properly specified and unbiased.

Table 5.3 above displays the dynamic GMM model regression results for the estimation performed on model 5.2. These results indicate that there was greater liquidity because

of effective management of fixed assets to generate revenue (sales). There was a negative relationship between ROA and ICP. This is in line with the aggressive working capital management theory, which suggests that high levels of non-current assets and less investment in current assets may generate more net income for a company (Nyabuti & Alala, 2014:213; Deloof, 2003:51). This means that a negative relationship between ROA and ICP may lead to an increase in profitability, because of increased inventory turnover.

The study also found a positive relationship between ACP, APP and ROA. Tauringana and Afrifa (2013:455) argue that a positive relationship between ROA and ACP is in line with the conservative working capital theory, while a positive relationship between ROA and APP corresponds to the aggressive working capital theory. This is supported by Mathuva (2010:9), who a found a positive relationship between profitability and the APP. If the ACP is positive, this indicates of a high level of debtors emanating from credit sales. The shorter the debtors' collection period, the more profitable the firm will be as it is able to turn inventory into sales more quickly.

In addition, this study found that there was a positive but insignificant relationship between ROA and the size of the company (TA), and between ROA and CAR. These are similar to those of Pais and Gama (2015:351), who concluded that a positive relationship exists between profitability and TA and CAR. A positive relationship between ROA and the TA implies that, as a company's total assets increase, so the non-current assets are used to produce goods more efficiently and productively, resulting in higher sales revenue and more profit. Hence, as TA increases, so too does profitability, because of operational efficiencies. Furthermore, a positive relationship between ROA and CAR means that less working capital can also lead to an increase in profitability, particularly if the current assets comprise more debtors than inventory.

5.6 Return on equity (ROE) GMM model

The Hausman test was used again to determine whether to employ the fixed effects (FE) or Random Effects (RE) estimators on the panel data. The p-value of one for the Hausman test showed that there was no evidence that the RE estimators were not valid, thus making REM more efficient than FEM for this variable. The Hausman test shows that we accept the null hypothesis that the random effects is correct. The R^2 showed that 33% of the variation in ROE was attributable to the regressors. The F-stat on the REM was positive and highly significant at 201.72, implying that the model was properly specified and unbiased. The discussion of results thus focuses on the REM, as indicated in Table 5.6.

The ROE model was specified as follows:

$$\mathrm{ROE}_{\mathrm{it}} = \beta_0 + \beta_1 \mathrm{ICP}_{\mathrm{it}} + \beta_2 \mathrm{ACP}_{\mathrm{it}} + \beta_3 \mathrm{APP}_{\mathrm{it}} + \beta_4 \mathrm{Size}_{\mathrm{it}} + \beta_5 \mathrm{CAR}_{\mathrm{it}} + \beta_6 \mathrm{GDP}_{\mathrm{it}} + \varepsilon_{\mathrm{it}} \quad \textbf{(5.3)}$$

Where,

ROE_{it} = Return on equity measured by profit after tax ÷ Total equity, and all other variables remain as previously defined in Equation 5.2 earlier.

The regression results are provided in Table 5.4.

Table 5.5: Dependent variable: Return on equity

	Pooled Effects	Fixed Effects	Random Effects	Differenced GMM	GLS	LSDVC
L.ROE	0.708*	0.579	0.708*	-0.0326	0.712***	0.807***
	(0.324)	(0.470)	(0.347)	(0.352)	(0.0478)	(0.0432)
ICP	0.00000777	-0.000617	0.00000777	-0.00760*	-0.00000747	-0.0000753
	(0.000229)	(0.000795)	(0.000172)	(0.00300)	(0.0000556)	(0.00233)
ACP	-0.000101	-0.000770	-0.000101	0.00269	-0.000147*	-0.000775
	(0.000264)	(0.000850)	(0.000143)	(0.00248)	(0.0000617)	(0.00149)
APP	0.0000236	0.0000319	0.0000236	0.000227	0.0000794*	0.0000339
	(0.000264)	(0.000183)	(0.000199)	(0.000182)	(0.0000348)	(0.000411)
TA	0.0670	-0.272	0.0670	0.793*	0.0606***	-0.239***
	(0.0704)	(0.272)	(0.0666)	(0.273)	(0.0172)	(0.0581)
CAR	-0.00347	0.0442	-0.00347	0.0111	-0.00202	0.0401
	(0.0204)	(0.0286)	(0.0163)	(0.0955)	(0.00194)	(0.0260)
GDP	-0.410	0.110	-0.410	-1.765*	-0.414***	0.0997
	(0.337)	(0.283)	(0.407)	(0.614)	(0.0923)	(0.176)
_cons	2.246	1.197	2.246		2.313***	
	(1.759)	(1.421)	(2.213)		(0.579)	
N	108	108	108	96	108	108
R^2	0.331	0.235				

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5.6: Diagnostic statistics: ROE

	Pooled	Fixed effects	Random effects	Diff GMM	GLS	LSDVC
Observations	108	108	108	96	108	108
Groups	12	12	12	12	12	12
F-stats/Wald chi2	2.39	3.20	201.72	5.90	2266.24	
Prob>F/Prob>Wald chi2	0.0264	0.0416	0.0000	0.005	0.0000	
Hausman (Chi2)		5.67	5.67			
Prob>chi2		0.3402	0.3402			
R-SQUARED						
Within		0.2353	0.2025			
Between		0.0565	0.8131			
Overall	0.3307	0.1038	0.3307			
rho		0.4541	0.000			
Arellano-Bond AR(1)				0.39		
Prob>z				0.699		
Arellano-Bond AR(2)				0.34		
Prob>z				0.732		
Sargan test of overid				7.75		
Prob>chi2				0.171		
Hansen test of overid				4.83		
Prob>chi2				0.437		
Instruments				12		

The results in Table 5.5 show that there was a negative but significant relationship between ROE and ICP. There was also a negative but insignificant relationship between ROE and ACP. A negative relationship between profitability and ICP implies that a reduction in ICP will result in an increase in sales and can therefore lead to an increase in profitability. Similarly, a negative relationship between profitability and ACP implies that

reducing ACP may lead to an increase in profitability, since the funds that are not tied up in accounts receivable can be invested elsewhere (Tauringana & Afrifa, 2013:455).

This finding corresponds to aggressive working capital theory, which postulates that a decrease in the investment in working capital by reducing the amount of inventory and accounts receivable could lead to an increase in a company's profitability (Afrifa & Padachi, 2016:46). This finding was consistent with those of Singhania and Shrma (2014: 320) and Vural, Sokme and Cetenak (2012:494), who found a negative but significant association between ICP and profitability. This study also found a positive relationship between ACP and ROE. This supports the findings of Abuzayed (2012:171), who found a positive relationship between ACP and profitability.

In addition, Table 5.5 above indicates a positive but insignificant relationship between ROE and APP. This is in keeping with the view that allowing more trade credit through the conservative working capital management theory can strengthen profitability, since it can serve as a product differentiation strategy (Afrifa & Pdachi, 2016:47). This finding was consistent with that of Deloof (2003:9) and Gul, Khan, Rehman, Khan, Khan and Khan (2013:65), who found a positive relationship between APP and profitability.

Similarly, the study found a positive but significant association between ROE and TA, and between ROE and CAR), respectively. These results support the view that, as the size of a company increases, so its profitability increases (Almazari, 2013:155). Ukaegbu (2014: 10) argues that bigger companies are able to expand their investments, using smart methods and managers who provide longer service. These findings were also similar to those of Raheman and Nasr (2007:291), whose study revealed a positive association between profitability and company size. Furthermore, Almazari (203:155) argued that the CAR is the most essential element of liquidity in influencing the profitability of a company.

5.7 Gross Operating Profit (GOP) GMM model

The Hausman test shows that we accept the null hypothesis that the random effects is correct. Therefore, our discussion of results will focus on the random effects model.

The GOP model was specified as follows:

$$\mathrm{GOP}_{\mathrm{it}} = \beta_0 + \beta_1 \mathrm{ICP}_{\mathrm{it}} + \beta_2 \mathrm{ACP}_{\mathrm{it}} + \beta_3 \mathrm{APP}_{\mathrm{it}} + \beta_4 \mathrm{Size}_{\mathrm{it}} + \beta_5 \mathrm{CAR}_{\mathrm{it}} + \beta_6 \mathrm{GDP}_{\mathrm{it}} + \varepsilon_{\mathrm{it}} \quad \textbf{(5.4)}$$

Where,

GOP_{it} = (Sales-Cost of goods sold) ÷ (Total assets-Financial assets), and all other variables remain as previously defined.

Table 5.7: Dependent variable: Gross operating profit

	Pooled Effects	Fixed Effects	Random Effects	Differenced GMM	GLS	LSDVC
L.GOP	-0.112	-0.133***	-0.112**	-0.546***	-0.0116	-0.0264
	(0.108)	(0.0121)	(0.0398)	(0.0272)	(0.0560)	(0.0957)
ICP	-0.00970	-0.00155	-0.00970***	0.00549	-0.00842***	-0.00112
	(0.00851)	(0.00196)	(0.00183)	(0.00695)	(0.000441)	(0.0307)
ACP	-0.00582	-0.00231	-0.00582**	0.00213	-0.00539***	-0.00202
	(0.00474)	(0.00149)	(0.00211)	(0.00338)	(0.000281)	(0.0183)
APP	0.00625	0.00549***	0.00625***	-0.00811***	0.00570***	0.00532
	(0.0112)	(0.000240)	(0.000552)	(0.000437)	(0.000327)	(0.00473)
TA	0.317	3.287	0.317	1.562	0.265***	3.113***
	(0.336)	(3.028)	(0.284)	(1.924)	(0.0204)	(0.525)
CAR	0.317	-0.0534	0.317**	-0.144	0.292***	-0.0655
	(0.291)	(0.207)	(0.0976)	(0.532)	(0.0122)	(0.261)
GDP	-3.038	-7.890	-3.038	-4.652	-2.196***	-7.547***
	(2.704)	(7.160)	(2.829)	(4.091)	(0.421)	(1.932)
_cons	17.62	28.91	17.62		12.51***	
	(15.24)	(26.47)	(17.13)		(2.691)	
N	108	108	108	96	108	108
R^2	0.156	0.067				

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5.8: Diagnostic statistics: GOP

	Pooled	Fixed effects	Random effects	Diff GMM	GLS	LSDVC
Observations	108	108	108	96	108	108
Groups	12	12	12	12	12	12
F-stats/Wald chi2	0.37	24289.49	1955.66	32482.64	1126.79	
Prob>F/Prob>Wald chi2	0.9160	0.0000	0.0000	0.0000	0.0000	
Hausman (Chi2)		2.25	2.25			
Prob>chi2		0.8956	0.8956			
R-SQUARED						
Within		0.0669	0.0483			
Between		0.0446	0.8744			
Overall	0.1563	0.0264	0.1563			
rho		0.2999	0.000			
Arellano-Bond AR(1)				-0.96		
Prob>z				0.338		
Arellano-Bond AR(2)				-0.99		
Prob>z				0.320		
Sargan test of overid				8.68		
Prob>chi2				0.123		
Hansen test of overid				3.15		
Prob>chi2				0.677		
Instruments				12		

The R^2 shows that 16% of the variation in ROE was driven by the regressors. The F-statistic on the random effects model is positive and significant at 1955.66, meaning that the model was properly specified and unbiased.

These results indicate that there was a negative but highly significant relationship between GOP and ICP. This supports the view that companies may have an optimal level of working capital that can strengthen their profitability by limiting the number of days of inventories to a reasonable minimum (Deloof, 2003:9). A negative relationship between ICP and profitability indicates that, if companies reduce their inventory level, investment in working capital will decline and this will lead to an increase in profitability. This finding is in line with the aggressive working capital management theory, which states that a decline in the investment of working capital by minimising ICP can result in an increase in profitability (Tauringana & Afrifa, 2013:455). These results were similar to those of studies by researchers such Deloof (2003:548) and Tran, Abott and Yap (2017:8), who found a negative relationship between ICP and profitability.

A negative but significant association between ACP and GOP supported the aggressive theory, which states that a decrease in the investment of working capital by minimising ACP can lead to an increase in profitability (Pais & Gama, 2015:342). Samiloglu and Akgnun (2016:8) also found a negative but significant relationship between ACP and profitability. A negative relationship between ACP and profitability means that when companies reduce their ACP, the CCC will decline and this may lead to an increase in profitability.

A positive and highly significant relationship between APP and GOP was found, consistent with the aggressive working capital management theory (Tauringana & Afrifa, 2013:455). This finding was similar to the results of Kaddumi (2012:220), Makori, and Jagongo (2013:10), who found a positive relationship between APP and profitability.

As far as the control variable was concerned, the study found a positive but insignificant association between TA and GOP. Such a positive association indicates that, as the size of the company increases, so the profitability also increases. This finding was similar to that of Mawutor (2014:129), who found a positive relationship between TA and profitability. This can be explained by the fact that total assets are used productively to

generate revenue with a resulting increase in total assets that is expected to bring about an increase in profits.

In addition to these findings, the study found a positive and significant association between CAR and GOP. Nazir and Afza (2009) found that adopting a conservative approach (more investment in current assets) ensured more value for shareholders and greater profitability for the company. This finding was consistent with the results of Reheman *et al.* (2010:160) and of Kaddumi and Ramadan (2012:121), who found a positive relationship between CAR and profitability. A high CAR is indicative of high current assets levels, which comprise debtors generated from sales revenue *vis-à-vis* short-term liabilities.

5.8 Conclusion

This chapter presented the results emanating from the application of the various models adopted in this study. Three models were regressed; ROA, ROE and GOP were the dependent variables in the respective models. Diagnostic tests and descriptive statistics were discussed. The findings from each regressed model were discussed in detail.

The next chapter presents the conclusion to the study, highlighting the main findings, and makes recommendations on how financial managers of the firms under study could better manage their working capital components, which affect profitability. Suggestions for future research are also made.

Chapter Six: Summary, conclusions and recommendations

6.1 Introduction

The aim of this chapter is, firstly, to provide a summary of the key empirical findings and a conclusion to the study. Secondly, this chapter scrutinises policy implications of the study and makes some recommendations. Finally, it provides suggestions for future research.

6.2 Summary of key findings

In addressing the research questions driving this study, the researcher used return on assets, return on equity and gross operating profit as proxies for profitability in three different models. These dependent variables were measured against various working capital components and control variables. The data were obtained from a sample of listed food and beverage companies in South Africa.

Table 6.1 below provides a summary of key findings of the three regression models based on ROA, ROE and GOP in this study.

Table 6.1: Summary of the key results

Dependent Variables	Independent variables	Coefficient	Effect and significance
ROA	Inventory conversion period (ICP)	0.0004	Positive
	Average collection period (ACP)	-0.0002	Negative
	Average payment period (APP)	0.0001	Positive*
ROE	Inventory conversion period (ICP)	0.0000	Positive
	Average collection period (ACP)	-0.0001	Negative
	Average payment period (APP)	0.0000	Positive
GOP	Inventory conversion period (ICP)	-0.0097	Negative***
	Average collection period (ACP)	-0.0058	Negative**
	Average payment period (APP)	0.0063	Positive***

Significant at 10%, **Significant at 5%***Significant at 1%

Source: Compiled by researcher

It can be concluded from Table 6.1 that, regardless of the profitability proxy adopted, the coefficient and effect of the independent working capital management and control variables was the same across the board. In the case of JSE-listed food and beverage companies, we can thus conclude the following:

- There is a negative relationship between profitability and the inventory conversion period.
- There is a positive relationship between profitability and the average collection period.
- There is a positive relationship between profitability and the size of the firm.
- There is a positive relationship between profitability and the current assets ratio.
- There is a negative relationship between profitability and the GDP.

Our findings support the aggressive working capital management theory. Nazir and Afza (2009) argue that aggressive working capital policies are associated with higher return

and risk, while conservative working capital policies are associated with lower risk and return. Smith (1980) asserts that working capital management is important because of its effects on firm profitability and risk, and consequently its value. Generally, the greater the investment in current assets, the lower the risk, but also the lower the profitability achieved. The positive correlations between CAR and size of the firm measured as TA are indicative of a negative relationship. As CAR and TA increase, the degree of aggressiveness decreases and profitability increases. Hence, a shorter CCC translates to increased firm profitability.

6.3 Policy implications and recommendations

Working capital management is particularly important in the case of food and beverage companies, since most of their assets are in the form of short-term assets, and short-term liabilities are one of their foremost sources of external financing. The aim of this study was to investigate the relationship between working capital management and financial performance in listed food and beverage companies in South Africa. To this end, a sample of 12 listed food and beverage companies was used to conduct a panel data regression analysis for the years 2007 to 2016. Based on the findings of this study the following recommendations are proposed to financial managers of food and beverage companies in South Africa:

- The study found a positive, insignificant relationship between profitability and the ICP. This means that if companies increase ICP by increasing the cost of sales, this may lead to a decrease in sales. A decrease in sales could result in a decrease in a company's profitability. The researcher therefore recommends that managers reduce their ICP by reducing selling prices in order to boost sales revenue, thereby increasing their profitability.

- The study also found a positive relationship between firm profitability and ACP, and APP, respectively. Based on these findings, the researcher recommends that management reduce investment in short-term assets and short-term liabilities by minimising the days in the ACP and increasing the time for APP in order to improve

profitability. An aggressive working capital strategy wherein short-term liabilities are well managed would assist firms in creating shareholder wealth by increasing profitability, which is in any event the mandate of firms.

6.4 Suggestions for future research

This study focused on the relationship between working capital and the financial performance of listed food and beverage companies in South Africa. Future studies could consider other industries in South Africa not involved in fast moving consumer goods (FMCG), such as agriculture, manufacturing, mining and health and pharmaceutical companies. The impact of working capital management on financial performance in such companies is likely to differ significantly from the FMCG sector.

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